

D11 Command Center HF Contingency Network (D11CCNET)

After-Action Report/Improvement Plan

12 November 2020

EXERCISE OVERVIEW

Exercise Name	D11 Command Center HF Contingency Network (D11CCNET)
Exercise Dates	24 October 2020
Scope	This exercise is a FULL SCALE exercise, planned for 8 hours at 4 Sectors, 2 Air stations and 1 District HQ geographically spread between San Diego and Eureka, CA.. Exercise play is limited to on-air activities on High Frequency and Very High Frequency radio spectrum.
Mission Area(s)	Mitigation, Response, Recovery
Core Capabilities	Ability to field deploy HF/VHF independent stations; ability to communicate voice and digital messaging traffic between deployed stations; ability to define required deployed station functions and training needs;
Objectives	<ol style="list-style-type: none"> 1. Pass voice and text communications from all participating Sectors and AIRSTA's to D11, and from D11 out to all participating Sectors/ AIRSTA's. 2. Pass voice and text communications from select Sectors/AIRSTA's directly to other select Sectors/AIRSTA's. 3. Validate that D11 AUX SOUTH and NORTH have sufficient radio operators and radio equipment in ready operating condition. 4. Identify, define, and specify the functionality and capability of a standard AUXcommsys deployable radio facility for temporary set up at each of the seven units including on CG Island. 5. Capture lessons learned sufficiently to create a job aid for setting up the radios and antennas at each location for future events.
Threat or Hazard	Loss of VoIP and other infrastructure communications capabilities due to earthquake, wildfire, and/or human caused events
Scenario	Simulate loss of data lines and VoIP between the CG Eleventh District HQ and the other six Sector and Air Station command centers in District 11. CG AUXcommsys deployed stations (total of at least 7) will substitute for the loss.
Sponsor	United States Coast Guard Eleventh District and USCG Auxiliary Communications System from Northern and Southern regions.
Participating Organizations	Eight field deployed radio facilities were provided and staffed by the USCG AUXcommsys, located at the seven command centers in CGD11. In addition, three fixed land radio facilities were activated by the AUXcommsys to act as on-demand relay stations. Counting the fixed land stations, total staffing numbered about 17 individuals.

Point of Contact

CDR Joseph Graham, USCG Eleventh CG District, Alameda, CA – joseph.f.graham@uscg.mil -- 510-437-3653; William Scholz, Manager, West Coast Region HF Net, USCGAUX, Upland, CA – rxviaradio@gmail.com – 714-292-4271

D11CCNET -- Origin and Context of the “Test”

In mid-2019, the Eleventh District Telecommunications Chief (D(t)) became aware of the fact that the only means of voice or data communications linking the seven command centers in D11 (4 sectors, 2 AIRSTAs, and D11 HQ) was dependent on the operational status of the “data lines” and internet connectivity into and out of those units. Since he was cognizant of the potential for a major earthquake, tsunami, or other event to disrupt all or part of those lines, he elected to explore alternatives that were not subject to those sorts of disruptions. That exploration led to the identification of High Frequency (HF) and Very High Frequency (VHF) radio as an alternative and further to the fact that while the active duty communications capability in HF had been seriously degraded due to retirements and loss of physical assets such as antenna systems, the CG Auxiliary communications system (AUXcommsys) had developed and continuously improved a district-wide network of stations that operated both in voice and digital messaging modes.

Beginning in late 2019, and culminating in a face to face meeting in late February of 2020, a series of decisions were made that resulted in planning and implementing a network of “deployable” HF and VHF CGAUX radio facilities which could support voice and data comms linking the seven command centers. (D11 Command Center HF Contingency Network or D11CCNET). A “Test” of that network was planned for summer of 2020, but due to COVID-19 was delayed until late October of 2020.

A detailed test plan and TTP document authored by the D11 D(t) and representatives of the CGAUX Division 11 telecommunications staff (both north and south regions) was created and then circulated to the appropriate members in both regions and formed the basis for a series of training activities both on-line and “on-the-air” between March of 2020 and August of 2020.

Excerpts from those two documents are in Appendix C of this after action report.

Results Summary

The five objectives of the test can be summarized into three groups: first, the ability to deploy and staff CGAUX radio facilities at the locations of the seven “command centers” in CGD11; second demonstrate the ability to link six of the seven with a facility that was the connection to the CGD11 HQ command center and also to connect pairs of the command centers not involving the D11 CC (e.g. Sector San Diego with Sector LA/LB or Sector LA/LB with Sector Humboldt Bay; third and

finally approach a definition of standard deployable facility capabilities and provide the information for “lessons learned” that will support the creation of training tools and content as well as the needed “operational job aids” for the use of AUX personnel who will staff the deployed radio facilities that will make up the D11 Command Center HF Contingency Network (D11CCNET).

FIRSTLY, Linkage of the six sector and AIRSTA level command centers with the simulated CGD11 command center in Alameda was accomplished almost perfectly as demonstrated by the logs submitted by all facilities. It is important to note and remember that the linkage was **ONLY ACCOMPLISHED** through use of the RTX (digital messaging) capabilities at all stations. This was foreseen in the test plan and not unexpected. While all stations connected with the Alameda simulated command center, one of them (AIRSTA Sacramento) could achieve that result only at the very end of the test period because of an equipment failure that was corrected in a true “MacGyver” fashion.

SECONDLY, connections between individual pairs of the deployed facilities were not accomplished quite so easily. There are several reasons for this. The most important in term of future corrective actions was the fact that even though the test plan called for all deployed facilities to have both HF and VHF capabilities, the facilities at Sector San Francisco and AIRSTA San Francisco were unable to link to any other facility except the simulated D11 command center because neither SECSFO nor AIRSTA SFO had high frequency capability. In addition the situation at AIRSTA Sacramento mentioned above made it impossible to test with most of the other deployed sites.

THIRDLY, The actual process of deploying and staffing of the radio facilities posed no problems or difficulties beyond the usual issues that arise in any “field deployment”. The members who provided the equipment, who installed and tested antennas, and who were the “watch standers” throughout the eight hours operational period deserve well-earned “Bravo-zulu’s”. The way they operated and their selection of equipment and software tools as well as the submission of “participant feedback” forms, “hot-wash” forms and other post test comments have laid the foundation for the configuration of deployable stations for future activations of the D11CCNET and the creation of appropriate “job aids” to ensure standard performance.

These results, plus other observations from participants and the “fixed land” relay stations will generate specific recommendations for “corrective actions” that are shown in the following section on each of the five objectives.

ANALYSIS OF CORE CAPABILITIES

Objective	Core Capability	Performed without Challenges (P)	Performed with Some Challenges (S)	Performed with Major Challenges (M)	Unable to be Performed (U)
Voice/Text comms to/from D11 CC (Alameda)	Communicate voice and digital text msgs	P			
Voice/Text Comms b/n Sectors & AIRSTAs	Communicate voice and digital text msgs		S		
Validate D11 AUXcommsys has sufficient personnel & equipment	Field Deploy & staff HF/VHF stations		S		
Define functional specs for deployable radio facilities	Define required station capabilities & training needs			M	
Capture lessons learned sufficiently to create deployment job aid	Define required station capabilities & training needs		S		

Table 1. Summary of Core Capability Performance

Ratings Definitions:

Performed without Challenges (P): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities.

Performed with Some Challenges (S): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. However, opportunities to enhance effectiveness and/or efficiency were identified.

Performed with Major Challenges (M): The targets and critical tasks associated with the core 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.

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

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

Objective

1. Test Voice/Text comms to/from D11 Command Center at Alameda

Communicate voice and digital text messages using radio only

Results

This objective refers to the two-way radio communication of text messages up to about 400 characters between the Coast Guard Island site and the other 6 command centers. Of the 12 possible paths 10 were successfully used. The one failure was due to unforeseen equipment failure at the deployed site (AIRSTA Sacramento). Details of circuits and messages are in the Test Plan document.

Strength 1: The design and implementation of antennas at the Coast Guard Island site near Building 42 was ideal for the communication over radio of text messages using HF and VHF as appropriate. Voice communication over the longer distance circuits (CGI to Sector San Diego for example) was not effective, but this was foreseen and all message comms were planned for text messages.

Strength 2: Choice of HF frequencies was adequate and sufficiently effective for all circuits planned for the test.

Areas for Improvement

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

Area for Improvement 1: A better means of “real time” dissemination of information about which HF frequency was in use at D11 CC (CG Island) would have reduced confusion at the other sites and made message passing smoother and faster.

Area for Improvement 2:

Corrective Actions Recommended

[DESIRABLE BUT NOT CRITICAL] Explore and implement two or more possible means of sharing in real time, information about which HF channels are being used by the D11 CC (CG Island), or whichever CC is acting as net control for D11CCNET, as primary and secondary for command and control as well as message distribution. These two or more means are to be tested in the next full scale D11CCNET exercise.

Objective

2. Test Voice/Text Comms between Sectors & AIRSTAs

Communicate voice and digital text messages using radio only

Strengths

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

Strength 1: During the test period of D11CCNET, many of the circuits (pairs of Sector and AIRSTA simulating units) were able to communicate in both directions as a result of scheduling and antenna positioning.

Strength 2: A focus of training and in the schedule of activities (TTP) was the plan to spend significant time and effort establishing and testing communications circuits using RTX (radio traffic exchange). Consequently, if the RF linkage was in place, exchange of traffic and test messages was easily accomplished.

Areas for Improvement

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

Area for Improvement 1: While communications between the NECOS (D11 CC CG Island) were generally effective and successful, there was insufficient attention paid to message exchange circuits between pairs of command centers not directly involving the D11 CC CG Island.

Area for Improvement 2: It was noted that some of the deployed stations did not adhere to the provided schedule and message content (see TTP). Greater focus needs to be dedicated to developing and following such a TTP

Corrective Actions Recommended

[DESIRABLE BUT NOT CRITICAL] Focus of the network planning team needs to address the issues of establishing, testing and maintaining two way circuits between as many pairs of command centers as possible using “working” frequencies where needed.

[MISSION CRITICAL] The content of the D11CCNET TTP regarding procedures and schedules referenced above needs to be converted into very specific procedures and message content so that standardization of operation is used throughout all the D11CCNET activities. These procedures should be in the nature of “checklists” so that they are easy to follow and to train operators in.

Objective

3. Validate that D11 AUXcommsys has sufficient personnel & equipment

Field deploy and staff high frequency and very high frequency radio facilities

Strengths

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

Strength 1: As a general rule, the deployed stations were well designed and implemented. Of the 8 stations deployed, six were complete (two were VHF only) and of the eight only one had equipment failure which caused it to lose operational capability

Areas for Improvement

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

Area for Improvement 1: Because of a lack of HF station and personnel resources in AUXcommsys Northern Region, two of the deployed sites (SECSFO & AIRSTA SFO) had only VHF capability. This was successfully used to pass messages between the sites and D11 CC, but lack of HF meant that those sites could only communicate with each other or with D11 CC. As a consequence, if the D11 CC VHF comms were disabled for any reason, the command centers at SECSFO and AIRSTA SFO would be cut off from the Command Center Network

Area for Improvement 2: Quarterly exercises between pairs of deployed stations need to be conducted so that real-world experience can be applied to stations and to personnel.

Corrective Actions Recommended

[MISSION CRITICAL] Develop and begin implementation of a plan that will ensure that there are sufficient deployable combined HF and VHF radio facilities in D11 North to guarantee that all command centers in D11 are served by simultaneously operating HF/VHF AUXcommsys radio facilities.

[MISSION CRITICAL] As a part of the plan referenced directly above, the D11 D(t) in concert with D11 DIRAUX and the individual region AUXcommsys staff officers should as soon as possible focus on the completion of all necessary installation and programming of the communications equipment in the ACV (Auxiliary Communications Vehicle). A relevant part of this focus should be a training plan for operators (RADO) for the ACV and policies governing its use for planned and unplanned events at locations in CGD11.

[DESIRABLE BUT NOT CRITICAL] As a part of the D11CCNET implementation, quarterly exercises between designated pairs of “deployed” stations should be held. It is suggested that with the guidance of the D11 D(t), an annual schedule of such exercises be created and adopted for both regions of the AUXcommsys in D11.

Objective**4. Define functional specs for deployable radio facilities****Define required radio station capabilities and training needs****Strengths**

The full capability level can be attributed to the following strengths:

Strength 1: As a part of the test plan (Appendix D) functional specifications were written and promulgated.

Areas for Improvement

Area for Improvement 1: While the specifications were created, there was no attempt to measure performance in a formal way for all of the deployed stations and consequently not all facilities had equal capabilities.

Corrective Actions Recommended

[DESIRABLE BUT NOT CRITICAL] Under the guidance of the D11 D(t), the functional specifications as defined in Appendix D of the D11CCNET Test Plan, should be formally adopted by the D11 DIRAUX as the requirements for a special class of “radio facilities” that are specifically intended for deployed use in support of either a sector/AIRSTA operation or as part of a COOP event.

[MISSION CRITICAL] Assuming that the specifications referenced above are adopted, then the AUXcommsys leadership in both north and south regions shall create and implement a training program to ensure that sufficient personnel are available to staff the special class of deployed radio facilities.

Objective**5. Capture lessons learned sufficiently to create deployment job aids**

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

Define required radio station capabilities and training needs**Strengths**

The full capability level can be attributed to the following strengths:

Strength 1: Discussions between the D11 D(t) and the AUXcommsys leadership are specifying the “way forward” to improve the D11CCNET operations in CY 2021

Areas for Improvement

Area for Improvement 1: There is no formal plan for the continuation and enhancement of the D11CCNET operation that is “signed up to” by the D11 D(t), the D11 DIRAUX, the elected leadership of D11 North and D11 South.

Corrective Actions Recommended

[MISSION CRITICAL] A conference involving the appropriate individuals (active duty and auxiliary) from CGD11 shall be held in January or February of 2021 to finalize the details of recommendations for the “way forward” to ensure that they are implemented and tested during the next session of the D11CCNET, tentatively scheduled for June/July of 2021.

APPENDIX B: PARTICIPANT FEEDBACK

Feedback Form	
D11CCNET Test 24 OCT 2020	
General Info	
Auxiliarists at site:	Scholz, Busch, Thorsson
Site or Unit name:	Coast Guard Island <small><i>i.e. Coast Guard Island, AIRSTA Sacramento, if you setup at a school or park, for example, then write the name of the school or park.</i></small>
Address	<i>N/A</i> <small><i>most applicable for Google maps</i></small>
Location description	North East side of island at the corner of building 42 <small><i>General description of where at that site or unit that you set up, e.g. in corner of parking lot closest to bldg. 42, or on main parade field in southwest corner.</i></small>
Feedback	
Site selection <u>As</u> desired, so it worked perfectly	Being able to park the ACV right next to the "shack" made for an effective and convenient location. In <u>addition</u> the grass field between the ACV and the water was perfect for antenna location.
Location selection	Only negative was the need to go to the exchange building for bathroom facility on Saturday. Not a major issue.
Equipment	The ACV was the perfect solution and with hindsight was a much better solution than the "shack" which had been originally planned. All the radio equipment worked as planned with no unexpected failures. Look forward to finishing the programming and debugging of the installed icom 8101 in the ACV so that adding another deployed radi station would not be required in future uses.
Exercise logistics & planning	Adequate with only minor changes required for the future
Test procedures	Generally good. Some minor improvements are needed. Most important will be detailed checklists for specific tests rather than depending on just training.

All other feedback	Major accomplishment is the first use of the ACV for a purely communications related assignment. The value of the ACV as a deployable asset cannot be overstated <u>with regard to facilities</u> . Procedures for use and for care and maintenance of the ACV need to be developed so that it is an easily accessible asset for contingency comms throughout all of D11.

Feedback Form	
D11CCNET Test	
24 OCT 2020	
General Info	
Auxiliarists at site:	Chris Galante and John Olson, Team AUXLB Gene Schultz and Chris Rosario, Team AUXLA
Site or Unit name:	Sector Los Angeles / Long Beach, San Pedro CA
Address:	1001 Seaside Avenue San Pedro CA
Location description:	On the grass area next to the road onboard CG Base Los Angeles / Long Beach
Feedback	
Site selection	Great site aboard the CG Base with access to the Sector.
Location selection	Good location for this event with plenty of room on the grass field to setup long wire antennas, shelter and movable picnic tables in the gazebo and close access to rest rooms.
Equipment	My transmitter failed to go into transmit so I was unable to fully participate. I was able to receive, although not as well as my other team member did. My new antenna seemed to perform well and tuned up with a low SWR on all but one AUX HF frequency. I was able to work the full operational period on battery only.
Exercise logistics & planning	No issues experienced with access to the Base or access to the location, travel orders received well in advance and logistics executed according to the plan.
Test procedures	The plans and schedules were well prepared, but the execution and timing seemed a bit off, generally because we could not always hear the other stations or determine where we were on the schedule. If Net Control had sent out a brief summary occasionally it may have helped.
All other feedback	This test was very helpful in having participants assemble, test and deploy equipment to discover flaws and what works and what does not. Future events should go more smoothly.

Feedback Form	
D11CCNET Test 24 OCT 2020	
General Info	
Auxiliarists at site: Glenn Arrant and Ed Simpson	
Site or Unit name: Sector San Diego	
Address	
Location description The Comms Trailer (NF114AB) was parked on the edge of the parade Field across from The response office	
Feedback	
Site selection	The site is perfect and has been used in a past COOP exercise at SSD
Location selection	Same comment for site.
Equipment	The Comms trailer has HF,VHF,UHF,P 25, and marine band radios with voice and RTX capability on HF and VHF. When necessary it has ALE capability. Food and water for three days are always on board. The trailer has heat / air conditioning. Three generators 2KW, 4KW and 6 KW. Except for the HF antenna, all other antennas are set up within the foot print of the trailer.
Exercise logistics & planning	The planning was outstanding. Next time will be even better.
Test procedures	The band conditions caused problems in the test schedule but ALE can solve this.

All other feedback	Next exercise suggestion: All the Sectors do a COOP with AUX providing comms to D11. OSC McGregor was a great help in pulling all this off. JHOC at SSD was also a tremendous help to us as well.

<h2 style="margin: 0;">Feedback Form</h2> <h3 style="margin: 0;">D11CCNET Test</h3> <p style="margin: 0;">24 OCT 2020</p>	
General Info	
Auxiliaries at site: <i>STANTON SELSTROM</i>	
Site or Unit name: <i>AIR STA SACRAMENTO</i> <small>i.e. Coast Guard Island, AIRSTA Sacramento, if you setup at a school or park, for example, then write the name of the school or park.</small>	
Address <small>most applicable for Google maps</small>	
Location description <i>RY PARKING LOT.</i> <small>General description of where at that site or unit that you set up, e.g. in corner of parking lot closest to bldg. 42, or on main parade field in southwest corner.</small>	
Feedback	
Site selection	<i>VERY GOOD</i>
Location selection	<i>VERY GOOD</i>
Equipment	<i>GOOD, OVERCAME DAMAGED EQUIP. FIELD REPAIRS</i>
Exercise logistics & planning	<i>VERY WELL PLANNED. STRONG SUPPORT BY DIRAUX/ COMMAND.</i>
Test procedures	<i>WELL PLANNED.</i>
All other feedback	<i>HAD USE OF VHF REPEATER - USED CELL T-RAT AS BACK UP. LOTS OF USE.</i>

Feedback Form	
D11CCNET Test 24 OCT 2020	
General Info	
Auxiliarists at site: Carol Paz <u>Jimmin Chang</u>	
Site or Unit name: Air Station San Francisco	
Address 1020 N Access <u>Rd.</u> , South San Francisco, CA 94128	
Location description Set up in parking lot in front of Command Center. Two parking spaces in from water. <i>General description of where at that site or unit that you set up, e.g. in corner of parking lot closest to bldg. 42, or on main parade field in southwest corner.</i>	
Feedback	
Site selection	Air Station San Francisco. Approximately 500 feet from the Operations Center.
Location selection	Location is <u>good</u> . Easy parking and set up location in parking lot with minimal need for interaction with active duty. Only negative is being in the middle with SFO on one side with noise of planes taking off and <u>Helos</u> on the other side taking off. Makes hearing and communicating difficult at times.
Equipment	<u>Icom</u> VHF Radio powered by car battery. Antenna on tripod with PVC pipe used for gaining height of approximately 12 feet. Lap Top Computer <u>Spectralink</u> USB. 2 TV tables and stools
Exercise logistics & planning	Well planned. Some confusion as to who should send the test 1 message. Should it be sent by AUXFXAIR or AUX11? It was sent by AUX11.
Test procedures	Using Text message worked to keep everyone in the loop. <u>However</u> message should contain who being sent to. Some texts were confusing in that sense. Being one of the 2 VHF stations there was a lot of dead space since unable to hear HF relays. This was confusing as to what was going on.
All other feedback	The team should practice together using <u>FLDigi</u> before the actual exercise. This was not allowed due to COVID. It made it more difficult since all is so new. We had requested exemptions from <u>Diraux</u> twice to do practice but were refused.

	<p>It helped having one team member keeping the log while the other manned the radio.</p> <p>All in <u>all</u> a good exercise.</p> <p>Thanks you for including us in it.</p>
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Feedback Form	
D11CCNET Test 24 OCT 2020	
General Info	
Auxiliarists at site: Robert Vanderhyde No others	
Site or Unit name: Sector Humboldt Bay <i>i.e. Coast Guard Island, AIRSTA Sacramento, if you setup at a school or park, for example, then write the name of the school or park.</i>	
Address <i>most applicable for Google maps</i>	
Location description East end of parking lot in front of admin/HQ building <i>General description of where at that site or unit that you set up, e.g. in corner of parking lot closest to bldg. 42, or on main parade field in southwest corner.</i>	
Feedback	
Site selection	Was able to locate on the SEC Humboldt Bay Property just outside the HQ/Admin building.
Location selection	In Cooperation w/AUXLO, CC Chief, and Base Engineering Supervisor, a good choice was made. Consideration was given to close access to Admin/HQ building that housed OPS and Comm Center. Consideration was given to being able to hand-carry written messages back and forth for transmittal and reply. However, the area was limited in size for additional expansion of AUX radio station. 120vac power with on-site backup generator was used.
Equipment	ICOM IC-718 Transceiver, 60m inverted vee wire dipole, Signalink, LDG Z100 auto tuner, laptop computer, Canon color printer, MFJ 4125 power supply, and Standard Horizon GX1300 Marine VHF transceiver and 1/4-wave whip. Part 90 transceiver with AUX and interop channels was out of service.
Exercise logistics & planning	Extensive planning on the part of others paid off well. My planning took a few hours prior to meeting with the CWOs at SECHB. Logistical needs for SECHB site was about five hours including testing. Total prep time including travel was approximately 23 hours.
Test procedures	Plan was fairly <u>well detailed</u> . Need to include specifics, such as send messages on all three channels within time allotted for each station. Need to include voice mode for updates, changes, etc. Phone texting was relied too heavily on. Text senders were not <u>ID'ing</u> with facility brevity, so had to look up who was sending every time.
All other feedback	For the first time out, this was a very productive test of capabilities. I should have also put up an NVIS antenna in addition to the dipole.

D11CCNET TEST HOT WASH FEEDBACK FORM

Part 1: General Information

Please circle the appropriate selection.

Number of Exercises Previously Participated in:	0	1 – 5	6 – 10	11 – 15	16+
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Part II: Exercise Design

Please rate, on a scale of 1 to 5, your overall assessment of the exercise relative to the statements provided, with **1 indicating strong disagreement, 2 indicating disagreement, 3 indicating neutral, 4 indicating agree, and 5 indicating strong agreement.**

Assessment Factor	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Pre-exercise briefings were informative and provided the necessary information for my role in the exercise.	1	2	3	4	5
The exercise scenario was plausible and realistic.	1	2	3	4	5
Exercise participants included the right people in terms of level and mix of disciplines.	1	2	3	4	5
Participants were actively involved in the exercise.	1	2	3	4	5
Exercise participation was appropriate for someone in my field with my level of experience/training.	1	2	3	4	5
The exercise increased my understanding about and familiarity with the capabilities and resources of other participating organizations.	1	2	3	4	5
The exercise provided the opportunity to address significant decisions in support of critical mission areas.	1	2	3	4	5

Assessment Factor	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
After this exercise, I am better prepared to deal with capabilities and hazards addressed.	1	2	3	4	5

Part III: Participant Feedback

Strengths	Core Capability	Element	Y/N
Planning was comprehensive and detailed consistent with the information and experience at the time. [Insert strength 1]	N/A	Planning Organization Equipment Training Exercise	Y/N Y/N Y/N Y/N Y/N
The level enthusiasm and participate were extraordinary [Insert strength 2]	N/A	Planning Organization Equipment Training Exercise	Y/N Y/N Y/N Y/N Y/N
Training, again very detailed and comprehensive. [Insert strength 3]	N/A	Planning Organization Equipment Training Exercise	Y/N Y/N Y/N Y/N Y/N

1.

Area's for Improvement	Core Capability	Element	Y/N
I believe that expanding the exercise to include an initial deployment notification sent via email and text and having each when they become operational via RTX and voice would ease the burden of Net Control by providing a real time availability of assets. This could be further enhanced by having designated fixed sites automatically provide relay ability notification to Net Control which will more clearly identify satisfactory communications routes that are available to Net Control.	N/A	Planning Organization Equipment Training Exercise	Y/N Y/N Y/N Y/N Y/N

<p>A printable, comprehensive guide to the setup and operation of Fldigi focusing on our requirements, which includes step by step instructions how to setup two or more radios to function simultaneously on one computer.</p> <p>Coupled with that maybe a similar guide on all of the messaging requirements, from notification of being on station and operational to acknowledging receipt of communications, to processing, relaying, etc. message traffic and reporting completion of task.</p> <p>A third guide would outline the standardize use of macros and how to effectively use them.</p>	<p>N/A</p>	<p>Planning Organization Equipment Training Exercise</p>	<p>Y/N Y/N Y/N Y/N</p>



D11CCNET TEST HOT WASH FEEDBACK FORM

Part 1: General Information

Please circle the appropriate selection.

Number of Exercises Previously Participated in:	0	1 – 5	6 – 10	11 – 15	16+
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Part II: Exercise Design

Please rate, on a scale of 1 to 5, your overall assessment of the exercise relative to the statements provided, with 1 indicating strong disagreement, 2 indicating disagreement, 3 indicating neutral, 4 indicating agree, and 5 indicating strong agreement.

Assessment Factor	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Pre-exercise briefings were informative and provided the necessary information for my role in the exercise.	1	2	3	4	5
The exercise scenario was plausible and realistic.	1	2	3	4	5
Exercise participants included the right people in terms of level and mix of disciplines.	1	2	3	4	5
Participants were actively involved in the exercise.	1	2	3	4	5
Exercise participation was appropriate for someone in my field with my level of experience/training.	1	2	3	4	5
The exercise increased my understanding about and familiarity with the capabilities and resources of other participating organizations.	1	2	3	4	5
The exercise provided the opportunity to address significant decisions in support of critical mission areas.	1	2	3	4	5

Assessment Factor	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
After this exercise, I am better prepared to deal with capabilities and hazards addressed.	1	2	3	4	5

Part III: Participant Feedback

Strengths	Core Capability	Element	Y/N
[Insert strength 1]	N/A	Planning Organization Equipment Training Exercise	Y/N Y/N Y/N Y/N Y/N
[Insert strength 2]	N/A	Planning Organization Equipment Training Exercise	Y/N Y/N Y/N Y/N Y/N
[Insert strength 3]	N/A	Planning Organization Equipment Training Exercise	Y/N Y/N Y/N Y/N Y/N

1.

Area's for Improvement	Core Capability	Element	Y/N
[Insert area for improvement 1]	N/A	Planning Organization Equipment Training Exercise	Y/N Y/N Y/N Y/N Y/N
[Insert area for improvement 2]	N/A	Planning Organization Equipment Training Exercise	Y/N Y/N Y/N Y/N Y/N

Area's for Improvement	Core Capability	Element	Y/N
[Insert area for improvement 3]	N/A	Planning	Y/N
		Organization	Y/N
		Equipment	Y/N
		Training	Y/N
		Exercise	Y/N

1. Some stations did not change their call sign in the FLDIGI configuration prior to making initial test transmissions. This coupled with 1BN and 1CH not receiving a group text message address made it difficult to determine who to send a text to. The individual facility IDs could not be easily correlated to the tactical call signs in the list of phone numbers. As such, and with the exception of a single message, all of my outbound text messages only went to you.
2. Referencing item 1 above, each operator should prepare a check-list of items / tasks to perform during set up. Setting up the tactical call signs should be on that list. The check-list should be concluded prior to initial transmission. It might be a good idea for us to prepare a pre-formatted check-list on the next go-around.
3. AUX11 did not appear to stay on channel long enough after making a call. There were calls that were answered, but AUX11 had moved to the opposing channel and was making an outbound call to the same station there while the response was being simultaneously transmitted on the original channel. I think this can be mitigated by rule: "A station must maintain guard on a channel for 5-minutes after calling another station. Stations must respond within 5-minutes, and if a full response is not possible, a short response that contains AR will be enough to indicate to the calling station that a response is forthcoming."
4. This station attempted to offer a relay on both B5D and C6B. All offers appear to have gone unheard. This may be due to item 3 above. We need to come up with a procedure where NECOS queries for relays (perhaps at the end of a sequence) or stays on channel long enough to copy an offer of relay. Note that an offer for relay is delayed beyond the response, so if the station doesn't stay for the response, the offer will also go unheard. I would place this in the category of "Use all of your resources to assure mission success."
5. Propagation was well below modem performance at times. Olivia 8/1000 can copy to an SNR of -7 dB. Olivia 16/500 can copy to an SNR of -14 dB, albeit at a lower throughput. Operators need to develop the situational awareness of when they need to change modems for conditions (if a better performing modem is available). When comms are suffering from a degraded ZBZ ranking, the operator should (automatically) switch to a modem that will result in a better ZBZ ranking, with the goal of achieving success. Operators need to be aware that sometimes they CAN do something to mitigate challenging conditions rather than plod along without taking any action to improve results.
6. I recommend that we come up with a macro or standard syntax to ROGER an acknowledgement. Something akin to "roger, out". Related is that a single instance of ROGER should be used (not ROGER ROGER).
7. Run-away transmissions were observed on multiple occasions. Operators should monitor their transmit buffer, and the migration of data from the transmit buffer to the receive buffer. Once the entire message has migrated to the receive buffer, if the transmitter is still keyed down after 15 seconds, something is wrong and the operator should take immediate action to resolve the problem. Run-away transmissions degrade the network bandwidth capability because nobody can transmit until the issue is resolved. FWIW, this problem occurs most frequently for the following reasons:
 - A. The transmit buffer was edited and the operator did not click at the end of the transmit buffer to place the cursor / insertion point beyond the ^r character sequence.
 - B. Failure to use the END - F6 macro to terminate the transmission.
10. One station offered direct relay of a message without going though NECOS. That station later corrected this by offering subsequent relays through NECOS.
11. Some relay messages were not done with the proper procedure, and no message tracking information was included in the relay.
12. AUX11 sent a number of messages that terminated in K/AR. This is very confusing to me because of "K" conveying the proword "Over", which does not require a response, and "AR" conveying the proword "Out", which does require a response. "Over" and "Out" are typically mutually exclusive, and all documentation indicates that these should not be used together.

APPENDIX C: D11CCNET TEST PLAN EXCERPTS

Test Plan D11 Command Center HF Contingency Network (D11CCNET)

Executive summary

The D11 Command Center HF Contingency Network is a set of CG AUX owned and operated HF and VHF deployable or fixed land radio facilities set up following a disaster that enables infrastructure-free strategic communications between the Command Centers within District Eleven.

During this one day test, CG AUX personnel will set up radios at multiple sites within D11 then use them to pass test message traffic to validate system functionality and tactics, techniques, and procedures.

Background

In the event of a catastrophic earthquake, a likely event in the D11 AOR, data circuits to Command Centers could be disrupted and therefore severely limit R21, COTHEN, chat, and email communications. The satellite and cellular phone channels may also be degraded or congested. Additionally, one of the lessons learned by Cal-OES is that during a contingency the tactical channels, primarily VHF radio, are saturated with responders, so having a long-range strategic comms channel provides significant value. Cal-OES's HF network is used in this way to connect their EOC's. The D11 Command Center HF Contingency Network provides an additional channel of communications, both voice and text, between Command Centers for strategic communications.

While the full TTP is still being developed, the concept has D11 AUX SOUTH and D11 AUX NORTH supporting each other where the unaffected area would send radios and radio operators into the affected area, under the assumption that those in the affected area would not be able to respond.

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Locations	Sector San Diego	On the parade field located in front of the Response Department office
	Sector LA-LB	On the "Ball Field" next to Base exchange
	Sector San Francisco	In parking lot near helipad command center

AIRSTA San Francisco	Parking lot just west of parade ground.
District 11	Parking ACV near CGIARC HF hut on field behind D11 Commander Office (bldg. 52)
AIRSTA Sacramento	At south end of parking lot east of hangar
Sector Humboldt Bay	Front Parking Lot near Sector CC

Appendix A of the test plan has diagrams of the specific setup locations.

Sector & AIRSTA Involvement

Involvement from the Sectors and Air Stations will be minimal. The only required involvement is permission to access the facility, permission to set up in locations identified in Appendix A, and use of bathrooms.

Additional participation is not required, nor is it allowed under current COVID restrictions. In the future, further Active Duty involvement is welcome if they are available. This could include passing test messages from the Command Center to the AUX HF site, then the receiving AUX HF site would deliver that message to the addressed Command Center. Other informal interaction, lunch together, meet and greet, brief tour of both Active Duty and AUX facilities, is encouraged to build relationships and understanding of capabilities.

COMMCOM Involvement

Not required, but we will invite them as a training & relationship building effort. Once we confirm the date of the test, we will reach out to COMMCOM to see if they are available.

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AUX Radio Facilities & Call Signs for Test

There will be a total of eight Auxiliary radio facilities deployed throughout the Eleventh District, each facility associated with a specific CG command center. The command centers, the tactical call sign and location for each associated AUX deployed facility are:

<i>UNIT ID</i>	<i>Voice Call Sign</i>	<i>RTX Call Sign</i>
District Eleven, PACAREA RCC	Aux One One	AUX11

Sector Humboldt Bay	Aux Hotel Bravo	AUXHB
Sector San Francisco	Aux Sierra Foxtrot	AUXSF
Sector Los Angeles Long Beach	Aux Lima Alpha	AUXLA
Sector Los Angeles Long Beach	Aux Lima Bravo	AUXLB
Sector San Diego	Aux Sierra Delta	AUXSD
AIRSTA San Francisco	Aux Foxtrot Air	AUXFXAIR
AIRSTA Sacramento	Aux McClellan Air	AUXMCAIR

In addition, several fixed land AUX radio facilities will be activated for the period of the Test and 24 hours before and after. Those facilities will act as alternate relay stations to assure that traffic can be successfully exchanged between the seven deployed stations. They will use their usual HF call signs and a list of the active stations will be published about 48 hours before the beginning of the test.

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Test Procedures, Success Measures

1. Upon completion of set up at each deployed station, the lead operator will arrange for a “radio guard” facility either at the unit being supported or at some other acceptable AUXcommsys facility.
2. [STARTEX] D11 Command Center sends an “immediate” precedence message (in ICS-213 record message format) addressed to the four Sectors and two AIRSTA’s in D11 requesting to know the current staffing levels for the Sector and AIRSTA command centers for the current radio day and the two radio days following. The message requests that an “acknowledgement of receipt” message be returned to D11 Command Center with a “priority” precedence
3. The message is hand delivered to the senior operator of the AUXcommsys comms facility (the ACV) on CG Island.
4. The message is filed on the D11 Command Center HF Contingency Network by an operator of the CG Island AUXcommsys facility for delivery to the addressees.
5. The message is routed via appropriate net stations for delivery to the four Sector Command Centers and two AIRSTA’s. The specific routing and delivery is not pre-defined, but in no case shall commercial or public systems such as internet-based email, cell phone, landline phone, sat phone, internet chat, or the like be used.
6. Once delivered to the sector/airsta Command Centers, the operator of the deployed station for each unit shall create an “acknowledgement of receipt” service message (priority precedence) addressed to the D11 Command Center giving the time of delivery of the original message and file that message with the D11 Command Center HF Contingency Network.

7. The simulated CDO of each sector/airsta command center shall create an “Immediate” precedence message (in ICS-213 record message format) addressed to the D11 Command Center providing the information requested above in paragraph 1. *(This message and the one defined in Section 1 will be pre-written and delivered in a sealed envelope to the AUXcommsys lead for each of the units for use during the test)*
8. The message will be delivered to the deployed AUXcommsys facility at each unit and filed on the D11 Command Center HF Contingency Network for delivery to the D11 Command Center. The time of delivery to the addressee will be noted.
9. The AUXcommsys CG Island radio facility will be the delivery point of the messages from Sectors and AIRSTA’s addressed to the D11 Command Center and if requested, a printed copy of incoming messages will be hand delivered to the CGD11 D(t). [ENDEX] when all filed messages have been delivered or the closure time of the test (1500) is reached.
10. A log of all transmissions (sent and received) shall be kept. This may be in written or electronic form. If electronic, it shall follow the format of either ICS-309 or CG-2614A. In addition, the electronic log from FLDIGI shall be saved and forwarded to a designated person at the end of the test.
11. A summary report will be generated by the CGD11 D(t) indicating the success of the test AUXcommsys resources in meeting the standards of accuracy for all messages as well as the “speed of service” objectives for the message precedence which are: IMMEDIATE – 30 minutes to 1 hour after filing time, PRIORITY – 1 to 6 hours after filing time.

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AUXcommsys Facility Definitions

The following category and capability descriptions are intended to standardize AUXcommsys radio facilities which will operate as a part of the “D11 Command Center HF Contingency Network” (D11CCNET). They shall not be used as minimum standards for facilities supporting other missions unless specifically requested by the mission commander. There are three levels of operational capability and three categories of physical implementation.

PHYSICAL CATEGORIES:

DEPLOYABLE -- For the D11CCNET activations and tests there will be a minimum of seven USCG units supported and all require that a deployable AUXcommsys facility be moved to a location designated by the unit commander, erected, antennas installed, and the combined facility be successfully tested and operated for the duration of the test. Deployable facilities are, by definition, not operational while in transit.

MOBILE – In support of the six deployed facilities (and the fixed facility on CG Island) there may be one or more mobile (including hand held portable) facilities. These facilities will be set up in such a fashion that they can provide a radio link between the “deployable” facility and the supported command center if required.

FIXED – Since the intent of the test is to provide a “radio only” strategic communications channel between specific pairs of command centers and since the vagaries of ionospheric propagation may make “long distance” relays of messages necessary, some currently existing and authorized AUXcommsys “fixed land” facilities will be “stood up” to support operations of the test as needed.

OPERATIONAL CAPABILITY DEFINITIONS:

PATROL COMMS (PC) – VHF (tactical) Voice on AUX LMR channels, VHF Marine “Government” channels, antenna is usually vehicle mounted. Power can be provided by transport vehicle

LIMITED OPERATIONAL COMMS (LOC)– the same as PC with addition of RTX VHF with or without a dedicated RTX radio. Separate antennas for each radio, elevated to at least 15 feet AGL. Power provided by battery bank, recharged by solar or other “non-commercial” sources. Minimum operational time for power is 8 hours. Computer for RTX may be shared with other applications.

FULL OPERATIONAL COMMS (FOC) – the same as LOC with addition of HF voice and HF RTX. HF shall have a maximum RF output capability of 100 watts, antenna shall be an NVIS configuration with a maximum SWR of 2:1 on all specified frequencies. Power provision shall be as “LOC” and the minimum operational time shall be 12 hours. Computer for RTX shall be dedicated to that function alone. Where possible a USB interfaced printer shall be provided.

<u>Category / Operational</u>	<u>Patrol Comms (PC)</u>	<u>Limited Operational</u>	<u>Full Operational</u>
Deployable	None	None	XXXX
Mobile	XXXX	XXXX	XXXX
Fixed	None	XXXX	XXXX

< **END OF EXCERPTS** >