

Department of Homeland Security
United States Coast Guard Auxiliary
Eleventh Coast Guard District, Southern Region
Communications Department – William H. Scholz, DSO-CM

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10 May 2004

TO: DCO, VCO, ADSO-CM's, SO-CM's, DVC-OT, BC-OTT, BC-OTU, BA-OTU, OPR3 Coordinator

INFO: D11s-OTO, DSO-CM-CGD13, DSO-CM-CGD11n, CAP Liaison

FROM: Bill Scholz, DSO-CM-CGD11s

SUBJ: Report on D11s COMMEX 01/02 May 2004

EXECUTIVE SUMMARY

On Saturday 01 May 2004 and Sunday 02 May 2004, a previously announced communications exercise was held from 011900Z May through 021900Z May. The purpose of the drill was three fold: 1. To test a district wide method of alerting the District's membership by the use of pre-established telephone trees and a hierarchy of radio nets as well as testing the ability of appointed SO-CM's to act as the key Division-level link between District and the membership; 2. To experiment with and test the usefulness of Digital Selective Calling as a means of establishing and maintaining contact with Auxiliary Operational Facilities; and 3. As time permitted to experiment with the use of radio direction finding equipment operating on Marine VHF frequencies to locate and track vessels and other facilities from a distance.

Results achieved were mixed with some disappointments and some notable and unexpected successes. In general, some Divisions accomplished the first objective easily while others clearly failed the test of being the mechanism for a structured means of both alerting the District's membership and of providing an infrastructure independent means of communication. On the other hand, for the first time, a radio based, infrastructure independent, communications system that covered the entire District from Santa Barbara to the Mexican border and from the coast to the Las Vegas/Colorado River area and the Phoenix, Arizona area was implemented and used successfully throughout the weekend.

The Digital Selective Calling experiment also met with mixed results. For those stations and facilities that were prepared and understood the technology and its uses, successful use of the tool to exchange position reports without voice comms was achieved. However, even though some 20 facilities were identified as having the needed Maritime Mobile Service Identifier numbers programmed in their radios, only a small handful were able to be queried successfully as to their locations. While no definitive answer is available, intuition says that the failure of the DSC experiment to yield positive results is more a matter of education than technology.

Unfortunately, the Radio Direction Finding part of the Commex could not have sufficient time devoted to it to gather useful information. In retrospect, the objectives of the COMMEX were too broad in scope.

Details of the various parts of the COMMEX are presented below.

BACKGROUND

In December of 2003, a major communications exercise (COMMEX) was held that involved more than a dozen agencies related to emergency preparedness in the Southern California area. The CG Auxiliary (District Eleven South) and Group 7 of the California Wing of the Civil Air Patrol were the lead agencies. While the drill was extremely valuable in identifying both strengths and weaknesses in inter-agency activities and in helping us all to understand the problems of multi-agency responses, it was also clear that the CGAUX had need of an exercise that focused on our specific problems and on our specific needs. Consequently, soon after the beginning of 2004, it was decided that in mid-Spring of the year a major exercise extending over at least 24 hours would be conducted.

Coincident with this decision, Operation Patriot Readiness Phase Three offered an opportunity to revise the District's Operational Readiness Plan. The Coordinator for that effort, Robert Sterzenbach, identified the DSO-CM as one of four DSO's who were asked to comment on the draft. That opportunity, combined with discussions within the Communications Department and at the District Conference in January of 2004, was tailor made to provide a vehicle that allowed a major change in the comms focus within the District.

In late February and early March, the DSO-CM announced a new initiative to revise the communications structure within the AUX in D11s. Heretofore the structure had been a single "radio net" meeting weekly on one of our VHF repeaters. While this was effective as a means of communicating with a significant number of members, it had two glaring faults. First of all, there was no defined connection between that net and those members who didn't happen to either own a "net" radio or whose interests or obligations precluded their participation in the weekly net. Secondly, because the net was VHF based, there was no way of including the outlying (that is, "away from the coast") areas of the District.

To correct these defects, and simultaneously improve our ability to contact our members in the event of a 9/11-like situation, a structure of four levels was conceived and implementation was begun. The lowest level is a "flotilla telephone tree". While we called it that, it could be any mechanism(s) that the flotilla leadership elected to use: phones, personal visits, radios, whatever. The only requirement placed by the comms department was that it be capable of reaching all, or essentially all, of the flotilla membership within a few hours.

The next level up in the hierarchy was the Division Net. It is conceived as a vehicle for communication between a representative of each Flotilla and one or more Division Staff. As implemented, the Division Staff Officer identified was the Communications Officer, and by default, the flotilla representative was the FSO-CM. The flotilla representative could be changed at the discretion of the Flotilla Commander, although it was required that the individual had to have access to a

radio net run on either AUX repeater frequencies or on VHF marine channels. Again, the DSO-CM placed no specific requirements on the structure of the Division Net, except that it must be independent of infrastructure and not dependent on telephone (landline or cellular) comms.

The third level up was a District net, or more properly, nets. This was seen as the vehicle through which one representative of each Division would gather in a radio net with District Staff and elected leadership as appropriate. Because of the nature of the geography of the District, it is well nigh impossible to achieve this with a single radio net. Initial focus therefore was directed toward the establishment of two nets, one VHF based which would cover the coastal area from the Mexican border to the northern limit of the District; and the other an HF radio net that would provide a link between the coastal areas and the inland parts of the District such as Las Vegas and the Colorado River and the Phoenix and Tucson areas with its large number of lakes.

The last, and as yet unimplemented, level of the network structure would be a multi-District net. Conceived in discussions between the DSO-CM's of D11n, D13 and D11s at N-Train in January of 2004, it is proposed as a "PACAREA" net. Such a level was unnecessary for the purposes of the present drill, and in addition, only a few stations outside of D11s have been included in the planning. It is expected, however, that before the end of CY2004, such a net, as well as one covering the CONUS will be in place.

PRE-DRILL ACTIVITIES

With the above background in place, the first formal announcement of the net structure took place on 2 March in a regular weekly net discussion of communications issues. The text of that discussion was also posted on our website and was forwarded to all SO-CM's.

On 8 March, after approval from the D11s OTO had been received, a formal announcement of the drill was posted to the website and distributed to all SO-CM's and ADSO-CM's via email. As a part of these discussions, and also in writing, the SO-CM's were directed to work with the FSO-CM's in their Division to ensure that each Flotilla had some sort of "telephone tree". In addition, the SO-CM's were directed to schedule a Division net "on the air" meeting, no later than 31 March 2004. The text of the relevant message is given in Appendix A.

Background discussions, both in person and on the weekly radio net continued on through the next several weeks. On 21 April, a two-page email was sent to all SO-CM's and to all ADSO-CM's, containing detailed instructions for the drill and also laying out a comms plan for the weekend. (The text is on the Internet at: http://www.d11s.org/PDF_files/May04Drillinstructions.pdf)

In the week preceding the drill several experiments were carried out using HF radio and establishing and testing comms on HF (single sideband) between various places throughout the District.

The final step before the drill was to communicate the details of the planned exercise to the SAR Controller at GRULA. That was done by email on 29 April and confirmation and permission to proceed was received that same day.

ALERTING MECHANISM TEST

The first and most important of the objectives of the drill involved the first District-wide live activation of the alerting mechanism defined above. For purposes of the drill, incident command was established on a 41 foot sailing vessel (S/V Principessa) that had received orders and was operating as "Alpha 439" The vessel departed Marina del Rey at about 2000 local time on 30 April and arrived at Catalina Harbor at about 0200 on 1 May.

Beginning at around 0900 local time on 1 May, Murphy's Law struck with serious intent. The first result was the discovery that VHF communications via simplex or the AUXNET repeater were essentially impossible with other AUX Stations. In addition, the IC's cell phone was rendered inoperable by an unexpected swim. The bright side of the events was that High Frequency communications from the vessel to stations in San Diego and in Page, AZ, Lake Havasu City, AZ, and the Phoenix area were determined to be loud and clear and reliable.

A contingency plan was put in place and "net control" for the District Net was shifted to AUX Radio Del Rey 3. The original alert message was transmitted to Del Rey 3, and that was broadcast on the AUXNET Repeater and on Channel 82A at 1415 local time. IC broadcast the same message on 7419.5 kHz simultaneously. The message was accompanied by a schedule of District Net call ups to be conducted simultaneously on the AUXNET Repeater and on 7419.5 kHz at 1515, 1615, 1715, 1815 local time. In addition, there was a scheduled District Net session at 0900 on Sunday morning on both frequencies.

As had been previous outlined in the drill instructions referenced above, the intention was that upon receipt of the alert message, Division Comms Officers (SO-CM's) or their representatives were to contact the appropriate Flotilla representatives in order to activate their "telephone trees". The Flotillas would then respond to the Division Comms Officers the results of the activation.

As a test of the alerting mechanism, we had several questions that needed answering. Among these were: How well would the flotilla trees work?; How well would a mechanism to report the results to Division and then to District level work?; How effective would both VHF (AUXNET Repeater and VHF Marine) and HF radio be as an alerting mechanism, and also as a means to collect information about

results?; What proportion of the District's membership could be reached in 1 hour, 2 hours, 3 hours, 4 hours, and in approximately 18 hours?; Were there any obvious breakdowns in structure that caused serious problems?

Details of the results are given in Table 1. Some narrative descriptions of achievements are:

1. The alerting mechanism involving telephone trees or other flotilla tools (and the reporting of results back to District) resulting in notification of just under 30 percent of the membership (counted at just over 2200) between 1400 on Saturday and 0900 on Sunday.
2. By Division, the proportion of Division membership reached varied from a high of almost 64 percent (Division 16) to a low (ignoring zeros) of 17 percent (Division 13). While there is no one reason for the results, it is clear that the amount of preparation done by the SO-CM's and the FSO-CM's is the major determining factor of success.
3. Three Divisions (3, 14, and 15) failed to respond at all. In two cases (3 and 15), the DSO-CM was aware that the SO-CM's would be unavailable for the drill. HOWEVER, in both cases repeated requests by the SO-CM for assistance to other members in the Division were apparently ignored. In the case of Division 14, no reason for non-participation is known. A fourth Division (11) was in fact represented on the HF net by its SO-CM, but apparently other Division members forwarded no information to him.
4. A total of 651 individuals were reported as having been notified of the drill alert. Of these 564, or almost 87 percent, were notified within 4 hours. For each of the hours following the initial broadcast, the percentage of the ultimately reached total was:

1 Hour	14.7%
2 Hours	33.3%
3 Hours	71.4%
4 Hours	86.6%

5. Of the fourteen Divisions in the District, three reported reaching more than 50% of their membership within the drill period, 3 reported reaching between 30% and 50%, 3 reported reaching between 15 and 30%.

CALL UP Results by Division--Drill 1/2 May 2004

Division	Net time 1515	Net time 1615	Net time 1715	Net time 1815	TOTAL	Net time Sunday	GRAND TOTAL	Division Membership	%age of Division
1	0	10	1	0	11	11	22	101	21.8
2	0	33	38	7	78	1	79	212	37.3
3	0	0	0	0	0	0	0	235	0.0
4	7	7	79	7	100	0	100	195	51.3
5	19	0	12	0	31	0	31	129	24.0
7	0	0	0	0	0	75	75	154	48.7
9	0	0	22	22	44	0	44	143	30.8
10	10	27	32	7	76	0	76	137	55.5
11	3	0	0	0	3	0	3	91	3.3
12	0	0	0	54	54	0	54	240	22.5
13	0	17	0	0	17	0	17	101	16.8
14	0	0	0	0	0	0	0	86	0.0
15	0	0	0	0	0	0	0	159	0.0
16	57	27	64	2	150	0	150	236	63.6
TOTAL	96	121	248	99	564	87	651	2219	29.3
%age/hr	14.7	18.6	38.1	15.2	86.6	13.4			
Cum %age	14.7	33.3	71.4	86.6		100.0			

TABLE 1

CONCLUSIONS AND LESSONS LEARNED

Considering that this was the first time a newly implemented alerting mechanism was tested, the results are not too bad. For many parts of the District and many members, the ideas behind the Emergency Response Plan being created by Operation Patriot Readiness III are new. Therefore it is to be expected that not all would go perfectly.

Of major concern is the fact that although the drill and the hierarchical net structure had been talked about, discussed, posted on the internet, and distributed via email in the Communications Department for some 60 days before the drill, it is apparent that the information did not make it down to the flotilla level with 100% coverage. While there is no definite solution at hand, **it is clear that additional means need to be put into place to ensure that Flotilla Commanders, Vice Commanders and Division elected officers need to be in a more secure communications loop than they are now.**

In the case of the three Divisions, which did not participate at all, the solution is a bit more obvious. Given the structure which is being put in place in the Emergency Response Plan as a part of Operation Patriot Readiness III in which the Surface Ops, Air Ops, Marine Safety, and Communications Departments play key roles in the initial activation, **it is imperative that Division and Flotilla Staff Officers in these departments be carefully chosen and trained in their roles.**

While the AUXNET repeater and VHF Marine communications played a key part in the success of this drill, it was the success of the HF comms that was truly rewarding and somewhat unexpected. For the first time, an HF net linked all parts of the District in real time. **However, the performance of the HF stations needs to be continually tested and improved.** To that end, an HF net for the District will be established to meet on a regular basis. In addition, linkages between HF stations and the VHF comms capability will be required.

A specific lesson learned is the importance of back up stations. Given the unexpected failure of VHF comms from Cat Harbor, had it not been for a ready willing and able station to step in as net control, the drill would have ended before it had begun. **Additional such stations need to be configured, trained, and continually tested in both the VHF and HF realm.**

In summary, the results achieved were acceptable for a new system. A key recommendation is that once the new Response Plan is released (expected June 2004), it will be of critical importance that it be tested on a regular basis. **It is recommended that District personnel instigate such tests and that they involve the participation of more than the Comms Department.**

DIGITAL SELECTIVE CALLING

DSC, even though it has been around since 1999 as a part of GMDSS, is still a relatively new tool for many coxswains in the AUX as well as the vast majority of recreational vessel operators. In addition, it is still not monitored on a regular basis (at least for VHF-DSC), by the USCG. Because of those facts, it does not achieve the usage that it could and supply the benefits of which it is capable.

As a part of the 1 May/2 May Drill, a first attempt was included to begin the testing in a non-controlled environment of the use of DSC for communicating position and status information between AUX vessels and between vessels and shore stations. Information was collected to identify the AUX vessels that had MMSI numbers assigned, had programmed them in their radios, and had GPS receivers interfaced to the radios. The number of such vessels (OPFACS) was approximately 20.

In addition to the vessels, at least one land mobile radio facility was so equipped.

During the time period of the drill, both IC on A439 and Belmont Shore Mobile 3 made repeated attempts to “ping” other vessels and request position reports. With the exception of repeated successes between these two stations, no other vessels were heard to reply to such requests.

The most likely reason for these results is a lack of education for AUX coxswains in the setup of DSC radios, necessary setting for them to operate unattended, and also the basic information about what the radio can do and how it works.

Therefore, it is recommended that the Communications Department, in conjunction with either Operations or Marine Safety undertake a serious effort to construct and distribute training materials. In addition, drills and exercises specifically limited to DSC use and testing are conducted in the near future.

APPENDIX A

TO: All SO-CM's, All ADSO-CM's
FROM: DSO-CM
CC: National Comms Staff, VCO, DCO
INFO: R. Sterzenbach, DSO-CM-D11n, DSO-CM-D13, D11s OTO
DATE: 1 March 2004
SUBJ: Implementation Plan for "Local Nets" in support of Operational Readiness Plan (OPR III)

Ladies and Gentlemen,

Below is the text of a "broadcast" that I will make tomorrow night (2 March 04) during our regular net session. I am sending it to you ahead of time so that you have a bit of a chance to think of questions you might wish to ask on the air. In addition, the plan puts a fair burden on the SO-CM's and I want you to have as much time as possible to carry it out.

The idea of local nets goes a long way to satisfying one of the major objectives for the Comms Department for this year, as well as being a key element in Operation Patriot Readiness. I look forward to your help in making this a reality.

Regards,

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There are several purposes for our Auxiliary Communications System, but one of them is to provide "back up" comms in the event of a natural or unnatural disaster. Recently, as a part of Operation Patriot Readiness Phase 3, a revision to the former "Disaster Preparedness Plan" (the last major revision of which was in 2001) was commissioned. The new plan now called the "OPERATIONAL READINESS PLAN" is in draft form. To quote from the Draft:

"This OPERATIONAL READINESS plan provides procedures whereas the members and operational units/facilities of the District 11(sr) Auxiliary respond to the Coast Guard, other federal agencies and state and local agencies when needed, in conditions of natural disasters, environmental emergencies, emergency call out, MARSEC (Maritime Security) levels 2 and 3, any condition out of normal Auxiliary operation/MARSEC level 1, and Coast Guard surge operations."

As Auxiliary communications specialists, we have two roles in this Operational Readiness Plan: One is the creation, maintenance and mobilization of communications facilities both fixed and mobile that can

be used to support the purposes of the plan. The second is to provide a tool that can be used to be the medium for notifying the Auxiliary membership of the need for an activation and in addition provide an ongoing vehicle for the two way communication of mission related information between the membership and the chain of command and control.

The first role is one that will not be dealt with in this broadcast, but work is underway to solidify, document, and improve our ability to provide such comms facilities. The second role is our topic for tonight.

Several times in the past we have talked about the concept of local nets here in our weekly meetings. These conversations are the foundation for the plan to be initiated tonight. The concept of "LOCAL NETS" is based on the idea that within a specific geographic area there should be a communications network in place to ensure that needed information flows in both directions. The specific tool or tools used to implement that communications network will vary based on the geographic area to be covered, the tools available, the need for speed versus accuracy, and the purpose of the communications to be transmitted. Ultimately what we want to achieve is a network which can function almost totally regardless of other conditions, such as lack of or unreliable telephones, power, or other public utilities). In the meantime, we shall focus on building a network using all the tools at our disposal.

The Operational Readiness Plan specifically mentions the use of Flotilla Telephone Trees and calls for their creation and testing on a regular basis. These "telephone trees" are the responsibility of the appropriate communications officers at the Division and Flotilla levels. Therefore, as a first assignment, each Division Communications Officer is directed to contact all the FSO Comms in their Division and ensure that such a tree is in place for each Flotilla. Also, one member (and as many alternates as may be considered necessary) shall be defined to be the ongoing point of contact with the flotilla for the purpose of "net communications". Division Comms Officers are directed to report back to the DSO-Comms with the status of the Flotilla telephone trees no later than 10 March 2004.

The second part of the assignment is that each Flotilla Comms Officer shall arrange for at least one alternate contact for the Flotilla who is reachable via either Auxiliary Net radio or via Marine VHF radio. The purpose of this is two fold: first it will provide a means of contacting at least one member of each flotilla in the event that the public switched telephone network is unavailable in a particular area; and second, that individual will represent the flotilla in a "Division" radio net.

The next step in the building of "local nets" is to create "Division" nets. These will be held on either Auxiliary frequencies, or on Marine VHF frequencies, shall be held no less often than every two weeks, and the SO-CM shall act as the Net Control Station. Their purpose is to provide a means, independent of infrastructure, for maintaining contact between Division leadership and each of the flotillas in the Division.

Each Division Comms Officer is directed to schedule their Division net's

first on the air meeting no later than 31 March 2004. To implement this structure, the SO-CM's are directed to suggest via email from the DSO-CM a frequency and time allocation for their Division's regular net.

The top tier in the structure will be a District wide "Readiness Net". It will meet at least once per month and participation by all SO-CM's (or their representative) as well as Rear Commodore's (who function as Area Resource Coordinators under the plan) is mandatory. A specific schedule for the net will be released in April of 2004, based on the combined schedules of each Division net. Initially the net will meet on the AUXNET repeater, with participation from those Division Comms Officers unable to communicate with the repeater via some other medium such as telephone or email.

The ultimate plan for the District Readiness Net will be a multi-frequency net utilizing both VHF (i.e. Auxiliary VHF frequencies) and HF. The HF component (which will allow direct voice comms) will tie together all the Divisions in the District including Arizona, the Las Vegas and "inland lakes" areas and other locations unreachable via currently available AUX VHF facilities. Its inception is pending receipt of authorization for use of specific HF channels and completion of necessary paperwork.

Questions regarding the implementation of the comms portion of the Operational Readiness Plan can be directed to the DSO-CM via email at "dsocm@d11s.org" or via telephone.

/s/

Bill Scholz, USCGAUX
DSO-CM, CGD11s