

QUAKEX'03 Drill Comments

[Please fill out this form with your comments about the drill and ideas for training.](#)

[Problem and Solutions from April 15th. meeting](#)

[Solutions from the QUAKEX '03 Review May 12 meeting](#) 

Hello Washington County ARES Radio Operators,

It was a busy time during the QuakeX drill. Some of you were very busy and some were probably getting more than a little upset with the way communication was going for you. It was a test of comms and the ability to communicate, and it showed lots of areas for improvement. That said, I say to you all that you did a wonderful job. Your time, effort and investment in emergency communications go well beyond the 4 hours spent putting it all together, and I for one greatly appreciate you all for what you accomplished Wednesday. For the emergency managers it may have been a drill, but for us it was real message handling, real problem solving, and real frustration in not being able to get each and every message passed in a timely manner. That's real life, and it must be dealt with. What we experienced in the drill is exactly what we would see in the event of a real situation where HAM communications is the only mode of communication. It shows that we cannot replace all the message routes that everyone of the public service agencies normally require. But it also shows that when those routes become unavailable, amateur radio operators such as you provide a valuable and useable alternate.

Most of the heroic messages you usually see in print are the result of a lone ham or small group of hams providing a link from some location that has become isolated due to a localized natural disaster. In the event of a disaster such as the earthquake of the drill, there would be widespread outages of most everything for a period of time. You along with everyone else would be working very hard on your own and your families' survival and well being. It would be unlikely that we would be able to get 40 or more radio operators to respond at one time at all the locations we staffed for the exercise. The public service resources would be spread thin and very overworked for a period of time, and communications would likely be localized and certainly prioritized to handle only the most important emergency messages. The drill Wednesday was designed to overload the system in a short time. People handling traffic just barely got a handle on the problems and some solutions by the time the exercise ended. It is up to us to continue the effort in training, equipment installation, and routine maintenance of the system to assure ourselves that we could, in the event of necessity, provide a useful service to our community.

THANK YOU ALL FOR YOUR TIME, YOUR INTEREST, AND YOUR DEDICATION. I KNOW IT WASN'T EASY FOR MANY OF YOU AND YOUR PARTICIPATION IN THE TRAINING, MEETINGS, AND THE DRILL TOOK A LOT OF YOUR PERSONAL TIME. IF YOU FELT UNDERUTILIZED DURING THE DRILL, I AM TRULY SORRY THAT I DID NOT DUMP SOME MORE OF THE LOAD ON YOU. IT WOULD HAVE BEEN MORE FUN FOR BOTH OF US. PLEASE MAKE YOUR COMMENTS, GOOD AND BAD KNOWN TO US ALL. WORKING TOGETHER IS SO MUCH MORE REWARDING THAN BUMPING ALONG ALONE. IT IS A HOBBY, BUT ONE THAT HAS A VERY SERIOUS SIDE EFFECT; ONE THAT YOU ALL CAN BE PROUD OF BEING A PART OF.

73 Ben N7OGM

The exercise went pretty well at the water department.. They seemed pleased by the number of messages (9) we sent to Wash Co EOC.. I don't remember that any of those messages asked for a response. They were all informational. We used voice when possible

and then packet until that also became a problem.. We ended up sending the last of them by voice..

We had 4 official messages for the field crew plus other communications regarding sending and receiving pictures. We did all of that (and the picture transmission) on 441.600..

They asked repeatedly for information concerning road closures as soon as we had it so they were pleased when the bulletin came in.. I regretted not having printer for that occasion.. They also had a scanner running to try to keep up but there was too much frequency changing for them..

The pictures went well.. No problem at all.. They assigned a young lady to run the computer and she had no problem capturing, storing, sizing and printing them to distribute around the EOC..

We did monitor 146.900 in case anyone called for us but it was painful listening to Don try to cope with it all so we stopped trying to make voice contact through him..

We put up the 80 meter dipole but the band was not good and there was very little traffic.. Claire checked us in with Wayne KK7TT but that was about it..

I should have been using tactical call signs right from the beginning..

For the future at TVWD I think they should update and improve their VHF system.. Have emergency power for their repeater and consider a backup repeater site.. They also need to become more familiar with their

radios.. Most of them were not aware that they could be used on simplex..

When they were told the repeater was not working they assumed they had no radio except hams!! It would be a challenge to interface their radios with digital cameras but it should be possible.. When the Kenwoods run out we also will have to do that..

That leaves the communication with Wash Co EOC.. I guess the only answer to that is patience and prioritization by someone..

They were pleased overall and Lee said they will provide an operator station and antenna for us.. If they will make that 2, one for voice and one for packet we would be in fair shape..

Ernie K7EAJ

FROM: DICK SHIPLEY, K7OER

SUBJECT: QUAKEX '03, DEBRIEF REPORT

I was the sole ham assigned to TVF&R BC Southern, operating at Station 34 in Tualatin. Southern Division has no pre positioned ham equipment, so my VHF UHF five watt handheld radio with a quarter wave "mag-mount" antenna was the only ham set available. We had no packet or SSTV facilities. Therefore, all of my comments relate to the voice system only.

The chief placed all his radio operators in one of the command vehicles located at the fire station. Early on, we observed an interference problem between TVF&R's VHF transmissions and the ham radio. Since their VHF equipment in the second command vehicle was not working, the chief moved me into that unit. This provided excellent separation from the command staff and TVF&R's radio operators, and eliminated the interference problem. Unfortunately, I allowed one of their people to place my antenna on the vehicle roof. He placed it too far back, on the fiberglass shell instead of the steel roof of the cab. I was unaware of this until the chief's debriefing, when the man who placed the antenna raised a question about it. This may have caused significant degradation of my outgoing signal.

Our location had good comms with net control. We were unable to reach anyone on simplex, not particularly surprising given our distance from all the other stations. We did achieve a one-way contact with Wilsonville, but it had no practical use.

The 147.38 and 440.35 repeaters were our sole means of contact. We were able to talk to Eastern Division at Oregon City (who were not on the published play list), but could not receive their transmissions. On the other hand, on 440.35, we could hear Northern Division,

at Beaverton, but they could not receive our signals. Around 1315, we finally got a contact with TVF&R FOC, but their signal was so noisy and broken that it was necessary for Paul (their operator) to spell out the entire message. (CW would have been faster, but nobody was set up for that!)

The occasional contacts we did achieve were usually by the "back door" method of telling net control the message we wanted to deliver, and hoping that our intended receiver was listening to the net. That, of course, increased the work load on the already overburdened NC. (Don did an absolutely fantastic job of keeping the net unsnarled and running. We need to find a way to simplify the operation.)

I heard some talk coming out of Oregon City to the effect that TVF&R should have its own repeater(s). I would second that, and with the notation that it should include VHF and UHF voice plus appropriate packet nodes. They could have one point of contact with the "outside world" and keep their internal traffic on their own system, with their own NC. I injected this idea into the chief's debriefing at the end of the exercise. He and his staff seemed interested, but concerned about the costs. (I realize that there are a lot of potential issues to be considered before getting into this.)

One of the big points coming out of the chief's debriefing was that the TVF&R system plus the ham system, taken together, did not handle traffic fast enough to be truly effective. For example, a HAZMAT spill at MERIX in Beaverton was first sent out around 1230; the call to us came around 1330. An hour's delay in responding to a hydrogen leak could be disastrous.

In order to achieve high proficiency, the hams and the clients need a lot more drilling together. This presents a huge problem, since the client agencies' personnel are usually on overtime for these things, and volunteers have their limits, also.

I was managing the IEARS team which staffed the sim-site in the Intel Mobile EOC/Communications Van. We were located at the Intel Aloha campus at SW 198th and Tualatin Valley Highway. We ran all three of our 144/440 MHz stations in the van; two for 9600 baud packet, and one for voice.

Our primary goals were:

- Feed two sets of scheduled messages into the system, primarily via packet, to the Red Cross in Portland.
- Feed scheduled "voice from out of the blue", non-formatted messages into the Washington County system

We also had other Intel EOC-specific goals which were secondary, but were accomplished as bandwidth allowed.

My notes:

1. The Red Cross sent me two sets of messages to feed into the system. The first were pretty reasonable--on the order of two to four sentences each. The second set starts in the same league, then each message gravitated into up to three pages of tables of the status of things like police and fire stations. I decided that this was an ideal opportunity to test the mettle of 9600 baud packet, and elected to push even the biggest messages through. Having the messages sent to me electronically (at least for the purposes of this drill) was a boon: we were able to copy/paste/prep the messages to be transmitted. I'm happy to report that even the biggest messages glided right through without hassles.

2. Due to the weather and relative hazards of deploying the 40' tower on our van, I elected to operate our stations using the mobile antennas on the roof of the van, which limited our range somewhat. This also limited the communications options for the voice message

station. The first voice message I tried to pass to LUT ended up taking fifteen minutes to get across after we tried unsuccessfully two or three different simplex and repeater frequencies. I ended up passing the message--the context of which was important--across on the NC frequency. It took all of about 90 seconds to do that and confirm that the gist of the message had been communicated. No, it wasn't NTS-formatted, but the spirit of the messages was, as I described it previously, it was a "voice from out of the blue".

3. Some of the scrambling with respect to communications ability seemed to be the result of coming up against untested situations. I know that IEARS can reliably run 144 and 440 MHz simplex between our campuses because we periodically run radio checks to identify what works and what doesn't work.

We also hold a weekly VHF net which also serves as an opportunity to learn the peculiarities of trying to communicate from inside our buildings. Many of the newer office buildings are astonishingly well-shielded--even the windows attenuate to an amazing level.

We actually employ bi-directional amplifiers (real-time RF simplex repeaters) in our buildings so that our 800 MHz radio system is usable within the buildings. One solution we have in a couple of our buildings which have this issue is to install a small pass-through pipe between the interior and exterior. These are normally capped when not in use, but allow us to quickly pass coax cables and cables for our satellite telephones through the walls to the outside.

I do have concerns about the reliance on packet radio for passing traffic. My experience with the drills in the past have shown that packet can be a very effective way to pass traffic--especially in one direction. However

I'm concerned about how fault-tolerant the packet infra-structure is. Will it survive what Mother Nature might throw our way, whether it's a seismic event, wind or ice storm, or forest fire? Making a packet node or BBS robust to that level is neither inexpensive nor effortless.

73 - Collier Chun

I was at TVFR FOC in Aloha for the drill. We had 5 hams participating in the exercise.

Observations:

1. We did not have enough separation between three 2m antennas which resulted in interference among the stations. We did not attempt to reduce power to the various radios to the minimum required for communication which should have helped reduce interference.

2. We had 70 cm packet radio but no 70 cm voice radio in the on site radio cabinet. We were able to add a 70 cm radio for voice brought by one of the hams. It turned out to be necessary to provide the communications needed by the served agency.

3. Working through one very competent but very overloaded net control station was less effective than needed.

4. The organization by District one and by county was not workable for TVFR because they had operations in multiple counties. After a period of time characterized by waiting for an opportunity to contact Net Control to arrange a contact and allocate a frequency for passing a message, we settled on using the 440.35 repeater in effect as the TVFR net. There were many messages between the TVFR FOC and the other TVFR facilities that were best handled by direct communication among their sites. We should provide for that in future exercises and in a real event.

5. TVFR had unrealistic expectations for the hams. Their expectation was that someone at FOC would ask for a direct connection with another site and that the TVFR personnel would then directly communicate with each other.

The concept of sharing the frequency with many other players was apparently not expected. In order to accommodate this direct communication, ham shadows for the specific persons would be needed along with dedicated frequencies.

6. The messages given to the hams to deliver were often incomplete in that they were ambiguous or were best suited for interactive communication.

One example: "Air delivery required at BHQ5" was thought to mean that BHQ5 needed an airlift to or from BHQ5 at the FOC. BHQ5 actually wanted air bottles delivered to them as they were running low on Oxygen.

7. The tactical names given by TVFR to their sites were unknown to the hams at FOC and also to other hams participating in the exercise, including those at the other TVFR sites. After asking several times for a contact with C6, we learned that meant the Wilsonville site. Net Control did not have this information and therefore could not facilitate communication. We must have site names in common or a widely published cross reference, or perhaps better, a procedure for acquiring this critical information and getting it out to the other ham participants early in an event.

8. Packet was not useful at our site because the antenna used for packet had an N connector but a PL-259 terminated cable had been attached to it at some time and it was not discovered until after the exercise that the PL-259 had damaged the N connector to an extent that there was intermittent and high loss connection to the antenna by the packet radio.

9. The printer for packet was a pin feed dot matrix printer and there was only a few dozen sheets of paper present in the cabinet. The ribbon was also nearly dry. We discovered this on the day prior to the exercise and more paper and a new ribbon was purchased by the hams and brought to the exercise. There needs to be a preventive maintenance/supply schedule for each radio cabinet at the served agencies.

10. We fortunately had backup generator at the site so power to run the tower computer and CRT was available for the computer but there was no UPS so we went through a power cycle during the event. It would be better to acquire one or more notebook computers to replace the desktop when available. There was no inverter for the battery installed in the cabinet so there would be no way to run packet if there were no backup power provided by the site. Because the FOC had a backup generator, this is not a critical issue, but dropping the power required to run the packet computer from the 300-400 watts needed for the tower computer to the 30-40 watts required for a notebook would be useful.

11. We slowly evolved a traffic handling procedure as the exercise continued. What worked for us was to have one ham act as liaison to the FOC. The FOC provided one person as liaison for the hams. This worked well. This ham and another handled logging traffic in and out to the hams and the FOC person knew where to deliver messages and get messages to the hams.

One ham worked with getting messages into and out of the FOC to the rest of the participants and another was dedicated to moving message among the TVFR sites. This worked well.

Another ham served as communications for Air Ops. We did not anticipate this but were able to adapt to the needs.

12. We adopted FOC call center forms for messages in and out rather than ARRL radiograms

because they were well suited for the served agency. Although we added the message numbers provided by the sender to the numbered forms for incoming messages, we used the number on the form for our outgoing messages. We handled all messages as tactical messages as we were not passing formal traffic.

13. It is important for the served agency to develop procedures and forms with hams that work for both hams and served agency. It must, however, be the responsibility for the served agency to provide immediate on site training at the beginning of an event or exercise because in a real event, the hams that worked at the last event may not be available for the next one. The hams must be responsible for providing a copy of the procedure book in the radio cabinet.

14. Overall, the exercise served its purpose in acquainting the served agency with the limitations of their being without cell phones, land lines and their 800 MHz radio system. TVFR had Satellite phones, but they were unreliable in the exercise. This came as a surprise to them. The TVFR personnel experimented with setting up relays with their 800 MHz radios as simplex to talk between sites. This provided them some additional communications, but required their positioning people with radios in strategic positions. In a real event, they may not have the resources to spare for this. The hams tried no modes other than voice and packet.

We did not attempt SSTV, or HF, or APRS at our site. SSTV would be very useful for the damage reports from the stations to the FOC.

Paul
KC7PMU

Thank you for allowing me to serve as net control for the April 2, 2003 QuakeX SET. It was a pleasure. Without exception, everyone was very courteous in their dealings with me in this capacity. I appreciated that very much. For the most part everyone observed the protocol of a directed net with the possible exception of rechecking after being directed to another frequency to pass traffic. Most likely that was my fault because I didn't remind those I sent to another frequency to recheck when they were finished so I would know the frequency was clear and that they were back. Next time I would emphasize the importance of rechecking.

I am aware of at least two blunders that I made. One was that St. Vincent Hospital wanted to communicate with Red Cross. My response to that was that I didn't think they were playing. I later learned they were and that I should have had St. Vincent go to the D-1 net for coordination of that traffic. The other blunder was with the station that wanted to communicate with a commercial radio station. Again I responded that they were not playing. I still don't think they were but my response should have been to go to the D-1 net. The information given was complete for who was playing within the county. It would have been helpful if I had been given info on who was playing outside the county as well. Next time I will be much quicker to send stations to D-1 when I don't know what to do with arranging the passing of traffic.

Undoubtedly, I could be criticized for not allowing my backup net control a chance to run the net. I attempted to do that at about 11:45 a.m. but apparently he was not listening. So I put the net on standby for the minute I needed and then came back and finished up the net.

At one point, Paul, KD7NBJ, who is involved with the Heart Net came on frequency intent on passing me some traffic. He even started, "Please copy #". When I told him that would not be allowed and that I would need to hook him up with the Washington County EOC on another frequency he quickly left the frequency. I did not like how that turned out.

The single most difficult problem for me to deal with was that many stations could not communicate on simplex as per the plan. This complicated matters for me because stations

continually returned to tell me they could not make contact and I had to repeatedly rearrange for the same piece of traffic. Because the 147.38 repeater had a PL tone it was not a very good alternative. Not everyone had 70-cm capabilities so the 440.350 repeater was problematic as well. Particularly frustrating was that the various TVF&R locations (Blanton, Tualatin, Beaverton, and Oregon City) could not communicate with each other on simplex or even on the repeaters. Toward the end of the exercise, it seemed that several of the TVF&R locations had figured out a 70-cm repeater that worked for them. Ideally, a non-TVF&R station should have been able to communicate with any one of the TVF&R stations for relay to the appropriate TVF&R location. I am sure you are already aware of how important it is for like agencies (fire, police, hospitals, public works) to be able to communicate with each other on a common frequency without going through a central net control. That means, of course, that there be a ham radio station at these like agency locations being capable of doing that. It is more than a ham showing up with a HT. Several other repeaters as good as the 146.90 would help as well.

As the SET progressed I found out that I couldn't depend on a frequency plan frequency being clear if I hadn't already sent stations to it to pass traffic. Stations apart from going through net control were using the plan frequencies. I can't fault that but it did require stations to come back for me to re-arrange a frequency for them to go to. Something to consider would be to have 3 or 4 simplex frequencies that would only be used by stations authorized by net control.

I am looking forward to the next SET. It was fun.

73

KK7TN - Don

Review of the Quakex '03 drill.
N7QQU stationed at WCCCA April 2.

During the drill I kept some notes on things I noticed we need to work on:

There was lots of noise and confusion caused by folks with messages coming into the radio room. Move them out to a different room or in the hallway.

Have a ham and a served agency person to help with message creation and filling out the forms. Setting the priority is a big deal.

All packet operators need to monitor a devoted 440 frequency - repeater or simplex or both. Ask questions, get help, and let them know about traffic, bulletins.

TVFR had problems with simplex and packet?????

Head phones are a must. No radio should be in the radio room. No need to yell into the mic. Try to keep the noise level down. It will lower stress level too.

Put SSTV pictures on a floppy so the served agency can display or print them as they like.

Use tactical call signs. You id as needed. Always us tactical call signs. No need for phonics unless they are asked for.

Be short and sweet.

NCS/traffic training for all of us. How can we speed up the process?

Match operators skills with the skill set of the task.

NCS scheme

Current -

All (20) stations monitor and call NCS to handle traffic- Stations move off to simplex and pass traffic, then recheck with NCS. Result is NCS very busy and congested.

Maybe-

All stations have an assigned simplex frequency. All stations wanting them should use that frequency. All stations monitor and call NCS when they have a question. Some will have a dedicated frequency and some will share depending on need. Some will have more than one. Voice, SSTV and packet voice ops.

Packet BBS scheme

Current-

All messages sent and received on WCBBS. There are many 2 m ports and only one 70cm port. Any station call can connect and use the BBS. Result is congestion.
No time for acknowledgment of received messages.

Maybe-

Add one 2 m port to the BBS TNC. Maybe adding another TNC with a 2m and 70cm port. Locking the BBS to a know list of call signs to accept. Use Packet Ops. Voice net for acknowledgment of received messages. Refer to message number on the BBS.

Have two Packet Operations Voice frequencies. Set one frequency for acknowledgment of received messages and one frequency for assistance.

Stat's from the packet side-

WCCCA

Messages in 36

Messages out

Total 101

Bulletins 40 (press releases)

Messages 61

In county 55

ARC Portland 4

OEM 2

73 - Ken

Quak03 4 April 2003

Don KK7TN DID A GOOD JOB WITH THE HIGH VOLUME OF TRAFFIC REQUEST.

The NCS station needs to set up incident command board. Stations list with NCS amount / type traffic for whom NCS approvals move to freq. and post on incident command board under agency and freq/ch/relay stations

Simplex not good with the antennas (portable) in use. Need someone to be a simplex relay station for each agency.

Need to do a complete repeater inventory:

A. frequency/CH

B. tone
C. powerERP/AC GEN
D. coverage
E. Location
F. HH tested
G. Location
H. owner approval
I. potential for damage at site.

IE. 146.900 - no tone 50W ERP / AC only
Washingotn Co, Newburg, McMinville
fair washington co coverage on HH.
Bald Peak/ Newburg Yes W7WWG
Power loss and hill top

146.960 - No tone 100W ERP / full time Genorater
Wide area Eugene + south - Vancouver north + some coast near Lincoln City.
HH good in Most of WA County On Goat Mt south of Estacada
W7OTV Emergency use Primary Clackmus Co. ARES, secondary Washington ARES.
others as available. W7WWG, WA0BRU, K7JDF
Winter access - storm damage to antennas - hill top

440.350 tone 127.3 25W ERP / AC and propain genorater
HH fair in WA CO. Worked will for Oregon City to TVF&R FOC on Reg radio.
should give coverage to wilsonville and Tualliton.
KGON Tower / basement duplexed to tower antenna.
W7WWG, some support by OTVARC.
Hill top

Did notice a lot of doubleing and clutter traffic.
Some lack of message format, priorities, Date Time, signatures, and key message
designator (This is a simulated emergency).

The chart with channel/frequency info good though only the 440 frequency had + or -
designators. On Cross band in/out or pair used not given IE 6 meters 52.570 / 44x.xxx

Harold D. Landers
WAØBRU

Subject: Notes from Quake Exercise

Problems that I had

- Unclear division of labor with the other operator at WCCCA (John) - he was overloaded & I wasn't much help to him! No way to communicate - we couldn't see each other.
- Multiple message forms confusing at first - not enough forms - should forms be serial-numbered?
- Not prepared to handle unformatted traffic from other sites - some operators wanted to use ham communication like a cell phone - Not familiar with radio - needed help with settings for offsets & pl tones

- Not clear how to handle log in to net control with multiple operators using the same call sign - must have been confusing to net control

Other Observations

- Unlicensed personnel running push-to-talk
- Training - presentations were well done, but message handling might benefit from some role playing (practice)
 - Who backs up the backups? Problems at one site apparently resulted from unexpected loss of packet capabilities - operators needed preparation to handle traffic by voice. How about ³cross training² packet & voice operators in message handling procedures?
 - What are regulations regarding use of own call sign when operating a club station. (OK, I can look it up, too)
 - Very friendly, positive attitudes all around. As a ³new kid² I very much appreciate the help that I was given, with special thanks to Ben!

73 Joe

Hi Ben..

I was at St. Vincent Hospital during Quakex helping Steve with ARES net business and principally working with the HEART net people. Communication requests were passed from St.V command to me then either to ARES or HEARTNET as appropriate. We had good communications with everyone. Everything worked well except our internal communications between the emergency room and the command center. Suggestions to fix that were passed to St. V. staff.

I was suprised there was such little traffic but I suspect in a real emergency, we would be overwhelmed with requests for information. St V. staff in the command center commented that they wanted to more about the community's situation..road closures, damage assessments, any info on when utility services were going to be restored, etc. We did not recieve requests for this kind of info dureing Quakex but I think some St. V. staff just expected that we would provide genereal assessment information to them anyway. We had to explain to them that we only pass messages. We do not provide unsolicited info.

So..question is this: Does anyone put together periodic community assessments of damage, road closures, etc that could be posted in packet message form for us to pick up, print out and provide to ST. V. staff? I am sure everyone would want this kind of info. Think we just need to know who does it and how to get our hands on it.

Fun, informative and good learning experince. Staff at St. V are VERY appreciative of our services!

J. Core KX7YT

Ben,

You probably heard my voice on Wednesday.

What a great drill. And finally one which does to the served-agency's communication systems what we suspect may happen.

Either failure or overload.

It was apparent that we, too, were overloaded, and that the net couldn't coordinate all of the traffic that was needed. I'm sure that was the point of it all. To force us to have to adapt.

I didn't get involved in the preplanning, and nobody probably knew that I was going to participate. That was partly oversight on my part, but I have a somewhat sadistic attitude about drills. If you are too prepared, you won't get the benefit of the on-the-fly problem solving. I like to see people do them "cold." Even with whatever preparation took place, we were still sufficiently unprepared to leave plenty of opportunity for learning. At the same time, I was able to provide some knowledge and guidance to the amateurs who were deployed to the FOC.

The guys who were at TVF&R FOC were first-class. We got some kudos from the agency, but they also had their frustrations about not getting as much traffic through our messaging service as fast as they'd like. We were beginning to adapt as we ran out of time. It was frustrating to need to dedicate resources to evolving our response, while at the same time, seeing a backlog of critical messages. I succumbed to passing the priority messages, and failed to complete the creation of the TVF&R-dedicated net that I'd hoped to.

When I was trying to find a repeater that would cover all stations served by the agency, I was a lone voice calling on a repeater for signal reports, and never figured out why I couldn't communicate. (Later we discovered a broken antenna.) I needed an assistant out there somewhere to help me get signal reports. We could have used a soul who was aware of the repeaters in the area, and their coverage, yet who isn't performing the task of net control.

7 years ago when we began the design of the pre-positioned radio systems for TVF&R and others, the cost of inverters to run the computers for packet was prohibitive. The cost is down, but the agency also has some surplus laptops now. We need to work on getting laptops, powered by our batteries, and dedicated to packet. I have a contact in IT at TVF&R to work with.

The N-connector on the GP3 antenna at FOC finally failed from the repeated insults of having a PL259 screwed into it. The antenna is labelled, but evidently the labelling has been overlooked too often. The result was that our packet, and 1 of our 2 voice radios were ineffective. A fourth radio brought by one ham had a suboptimal antenna situation. At minimum, we need to repair or replace the GP3, and find a way not to ruin it again. The insertion loss of the N connector is far better than a PL/SO239, but only before it fails. Maybe just sticking with the more robust 239's is a solution.

We need to create a manual for the station, to help to avoid some common problems.

At several different points, I had traffic to list, but the net was jammed up by traffic of lesser priority, and I couldn't get in at all. The solution is that when the net is saturated, to list only emergency traffic, then as the backlog decreases, open the net to lower priority traffic. The folks quickest on the key got in to the net. A less aggressive person with higher priority traffic was at a disadvantage.

People need to keep transmissions short, and to the point. Hams don't typically practice this art, instead they practice the rag chew.

The message forms used in the agency still don't adapt well to sending via radiogram. The agency did finally note this themselves.

The tactical callsigns used by the amateurs didn't match what the agency uses. We had a hard time figuring out what amateur station to call, when presented with an agency designation. Also, some messages arriving from the amateur net had tactical callsigns that the agency couldn't interpret.

Hams love to call themselves by the callsign they've been assigned, but in a crush, only tactical calls will survive shift changes. At some point I asked how many resources were at some location, and got a confusing list of names and callsigns. I couldn't tell which were duplicates (a name, and a call for one person). What I needed was something like: 2 operators, two radios.

We didn't get around to planning for a shift change. That's a task with its own complications, as we remember from the '96 floods.

We were so busy with traffic, that we couldn't stop to eat, even though lunch was provided.

PL tones on repeaters are a pain. When the tone is present to make the repeater more private, or exclusive, it handicaps it's benefit in an emergency situation. The only legitimate use of PL is for protection against intermod or interference with some distant, but not-quite-distant enough repeater on the same frequency.

Intel's COMM van, playing the role of sim cell was splattering all over the band on high power. I'd been coordinated by net ctl to a repeater, which was unusable due to their high power a good 40Khz away. I broke in between their messages, and had them lower their power. That helped a great deal.

We totally missed any opportunity to give the agency the opportunity to communicate directly with their counterparts. When appropriate, there's no reason not to arrange a contact, and pass the mic to a non-amateur. I used this technique in '96 to great effect with the hazmat spill in the high school in Vernonia. I put Sherry on the radio with Chief Webb in Vernonia, and they had communication of a quality that was equal to their own. That option needs to be kept as one of the priorities.

Recordkeeping, and organization is as big a part of communicating as is the actual radio work. We used a whole person just as liason, passing written messages in and out of the agency. We could have used another. Creating a suitable array of In-baskets and out-baskets -- one for each priority is a must.

We never got around to asking the agency what they wanted in a communication support system. We told them to write it down, and we'll pass it. That kind of service must always be a part of the system, but we also need to be more flexible, to do things like passing them the mic.

Likewise, we didn't present a very good view of what capability we did have. We didn't have a good network map to which to refer.

Handwriting messages takes a lot of time. I'd like to see folks using computers to transcribe messages, and print then print them out.

The bandplan had some people trying to use simplex on a repeater frequency. Some radios don't naturally lend themselves to this, as they automatically select offset for the repeater.

There was also a simplex repeater in use on one of the assigned simplex channels. That was itself a learning exercise.

The numbered channels didn't seem to work well. Without printed bandplans, they meant nothing. There were also discrepancies between the bandplans at various places. I was coordinated to "channel x, on freq 14y.zz", the printed bandplan didn't have that frequency for that channel number. Had to stop and verify whether to follow the channel number, or the frequency assignment.

My ideal staffing for a station of this size would be about 8-9 people, assigned something like

this:

Station manager, for planning, liason, shift changes, and resourcing.

Network operator (ideally, one for both D1, and WACO nets -- or one fixed, and one agile)

Traffic operator (the more, the better) probably two would be good.

Packet operator

Incoming liason (radio to agency)

Outgoing liason (agency to radio)

Scribe/ record coordinator

Inevitably, there will be the John Q. Public Ham, who will want to contact any of these served agencies, because his house is burning, or he finds an injured party. With all of the above operators busy just supporting communication within the agency, and with other served agencies, you could use one more operator just to take incoming public traffic. This person needs the calltaker training most of anyone in the team. Also could use one system engineer, just to look after power, antennas, radios, computers, supplies, etc.

Obviously, we'd need about 5 radios, with good outside antennas for this. Today we have 3 prepositioned.

Don't hesitate to ask for clarification of any of the above.

Doug, KB7RHF

Hello,

During the recent QuakeEx exercise, I attempted to setup a number of mobile capabilities in my truck. In order to make a number of these technologies function, such as APRS, SSTV & Packet, a computer is needed.

I was able to use the laptop that Intel provides for my use as an Intel employee. But the setup wasn't optimal. I am also concerned because installation of the software applications needed for the ARES activity could cause problems with the normal operation of the laptop. At a minimum, it takes space to load all of the applications, and might cause the Intel security folks some concern because of the confidential information on the laptop.

My hope in setting up the truck was to be able to provide a mobile platform that could be parked near a facility where communications capacity is needed. The truck provides shelter, power, and a solid base for the antennas. If the building were suitable for occupancy, runners could be used to move traffic between the truck and the interior of the building. It might even be possible to setup a long cable that would allow the laptop controlling the radio equipment to move into the interior of the building. (Some sort of short haul wireless setup is also possible, and I believe adds unnecessary risk and expense.)

If the building was not fit for occupancy, the truck could serve as a minimal base for operations.

During the exercise, I moved the truck to the new jail facility in Hillsboro. Although it was too late in the exercise to do more than test the concept, both simplex radio operation and packet worked just fine. I believe the truck could have been used to pass traffic, easing an obvious communication bottleneck. If others in the group are interested in such mobile operation, I believe a very useful capability could be added to the service we as hams are able to provide.

After the exercise, I sent a note to the IEARS folks that I work with, and asked if it might be

possible to get one or two laptops that have been retired from regular service to use for this activity? The response was positive, in that the management folks are at least willing to consider the idea.

If this is something you wish to pursue, a formal letter requesting the equipment be donated is needed. I believe Tripp Robinson would be the correct contact at Intel for the letter.

Thanks for your consideration.

Regards,
George
KC7PXF

The following comments are submitted from the perspective of Land Use and Transportation, Walnut Street Center, operating as W7LUT:

The exercise did a good job of pointing out some of the areas in which we were unprepared. Many of those areas would be magnified in real life" where we could be starting with minimal numbers of operators and the need to establish stations and procedures from a cold start condition.

From our perspective, there were a number of apparent problems to learn from and improve on:

- * Packet communications with WC7EOC was not working effectively - at least not the way we understood that it would take place. We sent several packet messages to the WC7EOC BBS. They were accepted by the system but none were acknowledged nor responded to. Granted some of the questions could have required time to research but other than the BBS acceptance of the message, there was no indication that anyone ever picked it up.

- * Our mmsstv process did not happen. We had two operators out in the field with inspection teams. Either the distances were too great for the simplex operation or transmissions were interfered with when sent. We believe that there was also some confusion as to operating procedures since both operators were new to the process. We also had one of the inspection teams mistakenly dispatched to the wrong area where there were no damages to report (or to take pictures of). Even then, the operator appropriately tried to send pictures but they were not received (by LUT, at least).

- * We are short on radios and antennas for the type of operation we were attempting. We had no 70 cm band capability since it was part of the dual band packet station radio. We tried using 70 cm handheld with extendible antennas from outside of the building but received no response on either the simplex or repeater "help" frequencies.

- * It seemed like the NCS lost control of many of the stations through no fault of his own. It appeared that many of the stations were going off on their own when they found a frequency that worked. In some cases when we were sent by NCS to another frequency, an operator would announce that frequency was in use. That occurred even though we had waited to assure that no conversation was taking place before attempting to transmit. It appeared that in some cases operators had decided to "adopt" a frequency and did not feel it should be shared with anyone else. As that scenario developed, it was impossible for Don to keep up with where people were or where they could be sent.

- * The packet system appeared to be overloaded and not capable of handling the intended traffic. This was either in addition to, or possibly the reason for, lack of acknowledgement of packet messages.

* Discussion has taken place as to how some of the message formatting could be improved. We were pleased that message handlers had taken our suggestion and provided messages on floppies for packet which greatly facilitated inserting them into the packet process.

On the flip side of many of the above comments, we realize that in an emergency it can typically take several hours for effective processes to be put in place and problems sorted out. However, with some changes and improvements, the time to become effective could be greatly improved.

Even with some of the failures, our agency was overall pleased with Amateur Radio's contributions and appreciated some of the problems that we ran into. They had some glitches of their own.

We also are appreciative of the fact that this was intended not only to practice our accomplished skills and procedures but to identify where we need more work. We are looking forward to the debriefing process to identify future training, procedures modification, etc. We hope also to identify what our equipment shortcomings are so that we can start working towards budget needs.

DLUT DOC WALNUT STREET CENTER, W7LUT

Vaughn, AC7HO, W7LUT Station Manager
Paul, KD7HDL, Packet Operator
Dave, KD7MOZ, Logging and Documentation

This summary was put together by the three of us that work at this location and other comments and perspectives may be forthcoming from those who came from the "outside" and worked as part of the W7LUT team.

I was at the WCCCA EOC, receiving slow scan pictures (SSTV). Used a laptop computer with MMSSTV and an HT.

The card table and location for me to setup worked out great. I had easy access to the antenna conduit and the mag-mount antenna worked fine. Power was available on the far wall. The location could have used less cold breeze from outside (wind gusts), and the HVAC system made a lot of noise above. It was hard to hear on headphones when I needed to listen to voice, and I was not well set up to transmit voice.

The pictures came in fine, after I worked around the interference on the 70cm band - might have been from packets going out on 70cm from a nearby antenna. I put the pictures on a floppy and handed them off to the runner as they came in. All images came in on 441.550 simplex. Eight images total were captured.

What will help better in the future:

- Coordination between the SSTV sender and the EOC. I was told that 440.350 might not be used, and guessed that they were coming in on 441.550, but didn't know when a picture was coming, nor how many pictures were missed.
- Notification after the image of its location (and, of course, acknowledgement of image). I didn't have an idea of where the pictures were from, nor whom to contact. I did reach the sender much later in the exercise.

- Having both parties coordinate through 146.900 per image might work, unless it's a bottleneck. An alternate solution is for the receiver to check in with Net Control, then move to an assigned frequency and monitor. Senders would check with Net Control, then move to the frequency.

The exercise went very well and we showed them that we can do it. The debriefing at WCCCA shows we were well appreciated.

Rick
KD7THV
