



ARES COMMUNICATOR

Information for Scott County Amateurs



March, 2012

Accurate, Reliable Emergency Communications

Volume 12, Number 3

2012 MN Skywarn Workshop

Saturday April 14, 2012

Join storm spotters and weather enthusiasts from across the state and region for the 6th annual Minnesota Skywarn Workshop on Saturday April 14th. It will be a full-day severe weather conference designed to train you in spotting techniques, equip you with information about the latest in weather technology, and connect you with other Skywarn communities from across the state.

The workshop is geared for experienced storm spotters, but is open to all. If you are interested in further developing your storm spotting skills, this workshop is the perfect place for you. If you are a public safety official and would like to hear more about the latest weather technologies that can make your community safer, please join us. If you simply have a fascination for weather and want to learn more about it, you are welcome to attend. The Minnesota Skywarn Workshop is intended to give intermediate to advanced skills in the areas of storm identification, severe storms research, spotter operations, storm safety, and the latest technology involving severe weather. If you are new to the spotter community, please be sure to also attend a spotter certification class near you!



The objective for this workshop is to train, equip, and connect Skywarn volunteers:
TRAIN... spotters to improve observational skills, reporting accuracy, and personal safety.
EQUIP... spotters with information about latest tools & **Skywarn** *cont'd on page 2*

The ARES COMMUNICATOR is published for the benefit of Amateur Radio Operators in Scott County and other interested individuals.
EDITOR: Bob Reid, Scott County Emergency Coordinator
Snail Mail: 13600 Princeton Circle
Savage, MN. 55378
E-Mail: N0BHC@aol.com
Phone: Home 952-894-5178 Portable 612-280-9328
Reader submissions encouraged!

Garage Door Openers

ST. CHARLES, Mo.— It's a puzzling phenomenon: On one street in St. Charles County, garage door openers have stopped working.

The St. Louis Post-Dispatch reports that no one knows what exactly is going on at Westhampton View Court. The garage door openers at all five homes on the court stopped working shortly after Christmas.

"It's a weird, weird thing," Joe Sullivan told the Post-Dispatch. "And the timing for it all to go haywire for everybody at the same time can't be coincidence, right?"

Garage door companies say interference problems are common at individual homes — they blame what is known as "frequency pollution." But experts say having the issue extend to multiple homes is just plain weird.

"There is so much radio frequency pollution now," Butch Martin, owner of Martin Door Co., told the paper. "Everything is wireless, and the more wireless stuff we get, the bigger the problem is going to get."

The Post-Dispatch reports that the Westhampton View Court residents filed complaints with the Federal Communications Commission over the issue. There is no word on how long it will take the FCC to conduct an investigation.

BREAK - OVER

ARES Activities

Weekly Net Monday 7 PM 146.535 mhz (s)

Breakfast Saturday, March 10th

Digital Monday, March 12th

ARES Nets

MN ARES Phone Net
6:00PM Sunday Freq: 3.568 mhz
ARRL MN Phone Net
12:00p, 4:30p CST Daily Freq: 3.568 mhz
ARRL MN CW Net
6:30p, 9:50p CST Daily Freq: 3.568 mhz

NETS WITH OUR NEIGHBORS

North Dakota: Daily 3.937 mhz 6:30pm
South Dakota: Daily 3.870 mhz 6:00pm
Wisconsin: Daily 3.985 mhz 5:30pm
Iowa: Daily 3.970 mhz 12:30/5:30pm

Skywarn *cont'd from col. 1*

technologies that can serve you in your duties. CONNECT... Skywarn communities from across the state to build relationships, encourage participation, and attract newcomers to the program.

Registration information is located at: <http://www.mnskywarnworkshop.org/register.php> Workshop pre-registration is \$30. Lunch options this year include a pre-ordered box lunch or lunch on your own off campus. Because there will not be other lunch options on campus, we highly recommend the pre-ordered lunch to ensure you have time to eat and visit with other attendees while not missing any of the presentations. The nearest off-campus restaurants are several blocks away.

You can find additional information at: <http://www.mnskywarnworkshop.org/index.html>

BREAK - OVER

Q. What do you use to open a banana?



A. A monkey!

Scott County ARES Contacts

Emergency Coordinator
Bob Reid NOBHC
13600 Princeton Circle
Savage, MN 55378
952-894-5178
NOBHC@arri.net

Asst. Emergency Coordinator
Bob Minor WONFE
5210 West 141st Street
Savage, MN 55378
952-894-2657
WONFE@arri.net

Asst Emergency Coordinator
Daniel Vande Vusse NOPI
5722 West 141st Street
Savage, MN 55378
952-440-1878
NOPI@arri.net



MN VOAD Training Conference

Saturday March 24, 2012

The 2012 Mn VOAD Training Conference will be held Saturday March 24, 2012 at the Hennepin Technical College in Eden Prairie. The conference runs from 8 AM to 4:30 PM.

The Hennepin Technical College is located at: 13100 College View Drive, Eden Prairie, MN 55347, you can follow the link below to see a map from the HTC website:

<http://www.hennepintech.edu/about/pages/74>

During the lunch break there will demonstrations in the parking areas by members of CERT (Community Emergency Response Team), Nechama and the City of Eden Prairie.

All registrations must be made via SurveyMonkey through this link or via the link you may have received by e-mail. Follow this link to register for the March 24th 2012 MNVOAD Training Conference via SurveyMonkey! <https://www.surveymonkey.com/s/MNVOADconferenceregistration2012> After you complete the SurveyMonkey registration process you can mail your payment to: MNVOAD, P.O. Box 130261, Roseville, MN 55113-003

BREAK - OVER

Loaded Hornet



PATUXENT RIVER, Md. An F/A-18F Super Hornet assigned to the Salty Dogs of Air Test and Evaluation Squadron (VX) 23 conducts a captive carry flight test of an AGM-88E Advanced Anti-Radiation Guided Missile (AARGM) at Naval Air Station Patuxent River, Md.

NASA unplugs last mainframe

IBM mainframes no longer a NASA workhorse

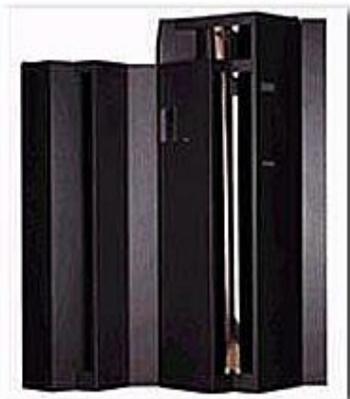
It's somewhat hard to imagine that NASA doesn't need the computing power of an IBM mainframe any more but NASA CIO posted on her blog today at the end of the month, the Big Iron will be no more at the space agency.

NASA CIO Linda Cureton wrote: *February marks the end of an era in NASA computing. Marshall Space Flight Center powered down NASA's last mainframe, the IBM Z9 Mainframe. For my millennial readers, I suppose that I should define what a mainframe is. Well, that's easier said than done, but here goes — It's a big computer that is known for being reliable, highly available, secure, and powerful. They are best suited for applications that are more transaction oriented and require a lot of input/output - that is, writing or reading from data storage devices.*

In my first stint at NASA, I was at NASA's Goddard Space Flight Center as a mainframe systems programmer when it was still cool. That IBM 360-95 was used to solve complex computational problems for space flight. Back then, I comfortably navigated the world of IBM 360 Assembler language and still remember the much-coveted "green card" that had all the pearls of information about machine code. Back then, real systems programmers did hexadecimal arithmetic - today, "there's an app for it!"

But all things must change. Today, they are the size of a refrigerator but in the old days, they were the size of a Cape Cod. Even though NASA has shut down its last one, there is still a requirement for mainframe capability in many other organizations.

Of course NASA is just one of the latest high profile mainframe decommissionings. In 2009 The U.S. House of Representatives took its last mainframe offline. At the time Network World wrote: "The last mainframe supposedly enjoyed "quasi-celebrity status" within the House data center, having spent 12 years keeping the House's inventory control records and financial management data, among other tasks. But it was time for a change, with the House spending \$30,000 a year to power the mainframe and another \$700,000 each year for maintenance and support."



IBM Z9 Series Mainframe

BREAK - OVER

Test Your NIMS Knowledge

This month we will review some of the points from the course ICS-200b: ICS for Single Resources and Initial Action Incidents. Check your recall of the course material with these questions.

1. When command is transferred, then all personnel with a need to know should be told:
 - (a) The qualifications of the incoming Incident Commander
 - (b) The limits of the Incident Commander's scope of authority
 - (c) The effective time and date of the transfer
 - (d) The Incident Commander's cell phone number
2. Chris Smith is the Situation Unit Leader. No Planning Section Chief is assigned. Who does Chris Smith report to?
 - (a) Operations Section Chief
 - (b) Public Information Officer
 - (c) No Direct Supervisor
 - (d) Incident Commander

Check next month's ARES Communicator for the solution



February NIMS Knowledge Solution

1. Who generally facilitates the Operational Period Briefing?
D. Planning Section Chief
2. Select the TRUE statement:
 - A. ICS organizational structure should include only the functions and positions needed to achieve the incident objectives

Internet Shutdown March 8th?

FBI might shutdown the Internet on March 8

Millions of computer users across the world could be blocked off from the Internet as early as March 8 if the FBI follows through with plans to yank a series of servers originally installed to combat corruption.

Last year, authorities in Estonia apprehended six men believed responsible for creating a malicious computer script called the DNSChanger Trojan. Once set loose on the Web, the worm corrupted computers in upwards of 100 countries, including an estimated 500,000 in America alone. The US Federal Bureau of Investigation later stepped up by replacing the rogue Trojan with servers of their own in an attempt to remediate the damage, but the fix was only temporary. Now the FBI is expected to end use of those replacement servers as early as next month and, at that point, the Internet for millions could essentially be over.

When functioning as its creators intended, the DNSChanger Trojan infected computers and redirected users hoping to surf to certain websites to malicious ones. Traditionally, DNS, or Domain Name System, servers translate alphabetical, traditional website URLs to their actual, numeric counterpart in order to guide users across the World Wide Web. Once infected by the DNSChanger Trojan, however, websites entered into Internet browsers were hijacked to malicious servers and, in turn, directed the user to an unintended, fraudulent site.

In coordination with the arrests in Estonia, the FBI shut down the malicious DNSChanger botnet network, and, additionally, replaced them with surrogate servers to correct the problem. Those servers, however, were installed *“just long enough for companies and home users to remove DNSChanger malware from their machines,”* according to the court order that established them. That deadline is March 8, and those surrogate servers are expected to be retired then. At that point, computers still infected with the Trojan will be essentially unable to navigate the Internet.

Who, exactly, will be affected? Security company IID (Internet Identity) believes that half of all Fortune 500 companies and more than two dozen major government entities in the US are still currently infected with the worm as of early 2012. Unless they take the proper steps to eradicate the Trojan from their systems, millions of users worldwide will be left hog-tied, helplessly attempting to navigate to nonexistent servers and, in effect, without the Web.

“At this rate, a lot of users are going to see their Internet break on March 8,” Rod Rasmussen, president and chief technology

cont'd col. 2

Take a Dip in the General Pool

Time to test your knowledge of the information covered by the General Class license exam. Each month we'll take a look at a selection from the question pool. Here is this month's sample:

1. With which foreign countries is third party traffic prohibited, except for messages directly involving emergencies or disaster relief communications?
 - A. Countries in ITU Region 2
 - B. Countries in ITU Region 1
 - C. Every foreign country, unless there is a third party agreement in effect with that country
 - D. Any country which is not a member of the International Amateur Radio Union (IARU)

2. Which of the following modes is most commonly used for voice communications on the 160, 75, and 40 meter bands?
 - A. Upper sideband
 - B. Lower sideband
 - C. Vestigial sideband
 - D. Double sideband

(Check next month's issue of the ARES Communicator for the answer.)

March General Pool Answer

1. What language must you use when identifying your station if you are using a language other than English in making a contact using phone emission?
 - C. English
2. Which sideband is most commonly used for voice communications on frequencies of 14 MHz or higher?
 - A. Upper sideband

BREAK - OVER

Shutdown? *cont'd from col. 1*

officer at Internet Identity, cautions Krebs On Security.

Currently, both the computer industry and law enforcement are working together through a coalition they've established called the DNSChanger Working Group. That group has been tasked with examining the options in phasing out the surrogate servers set up by the feds, but unless an alternative plan is agreed on, a great part of the Web will go dark next month.

“I'm guessing a lot more people would care at that point,” Rasmussen adds. While infected users are cautioned to correct the problem now, millions internationally are still believed to be infected. *“It certainly would be an interesting social experiment if these systems just got cut off,”* he adds.

BREAK - OVER

Twitter in Morse Code

Paul Ridden, Giz-Mag

Urgent messages sent using Morse Code via radio waves or by electrical telegraphy are, by necessity, quite short - after all, you don't want to spend all day dotting and dashing your way through *War and Peace*. These days, of course, if you want to send the latest piece of gossip or news to those near and dear there are quite a few quicker options - from email to instant messaging and Facebook to Twitter. For users of the latter networking platform who are looking for a novel way to merge the old with the new, Martin Kaltenbrummer's open source Tworsekey Morse Code interface can deliver messages direct to the Twitter API via Ethernet LAN.

While messing around with basic electronic circuits when reviewing the Minty Geek Lab last June, I put together a Morse Code Oscillator. It never even



The open-source, self-build Tworsekey interface allows users to tap short messages in Morse Code on the key, have it translated into text by the device and then update a Twitter status via the platform's API

occurred to me to try and extend this to a Twitter input device but that's precisely

what Tworsekey does. It's not for sale, though. The Twitter input interface is a self-build project, with all source code and building instructions available on Kaltenbrummer's [project page](#).

An [Arduino Ethernet board](#) takes care of decoding the dot and dash input from the vintage-looking Morse switch on top of the wooden box that encloses the circuitry and the 9V battery (although it can also be powered via a 5V mains adapter). There's an RGB LED peeking through the side of the box for visual feedback, and a piezo buzzer that sounds when contact is made on the Morse Key.

Kaltenbrummer has even included a cloth-wrapped RJ45 Ethernet cable for some added yesteryear authenticity. The designer says that those attempting to build their own Tworsekey will also need a USB FDTI cable to program the board and should also be prepared to dust the cobwebs off the soldering iron.

When built and ready to go, the user needs to tap out an appropriately short message, and then press and hold down

cont'd col. 2

Skywarn Class Update

Metro SKYWARN recently announced a change in the class schedule. The Metro SKYWARN website has updated the schedule.

- The Medina Class scheduled for May 5 had to be moved back to June 9.

- The April 21 class mistakenly had 6-10pm. The class is actually from 8:30am - 12:30pm.

Just a reminder to double check if your class has pre-registration.

The National Weather Service has also created new spotter guides. You can download it at: <http://www.nws.noaa.gov/om/brochures/SGJune6-11.pdf>. Spotter guides are limited (as there are so many NWS offices ordering them), so if you can, please download it instead.

BREAK - OVER



*Happy
St. Patrick's
Day!*

Everyone is Irish on March 17th!

Morse Tweet *cont'd from col. 1*

the switch for a couple of seconds to have Tworsekey transmit the Twitter status update. The device has its own Twitter account (— . . . — — —) that displays messages generated using Tworsekey.

Kaltenbrummer is quick to acknowledge that Tworsekey is not the only device of its kind that's been created, but it is probably the best looking example we've seen so far. Let us know what you think.

Perhaps the following video demonstration will help you decide:

http://www.youtube.com/watch?v=V9KckRf_MKo&feature=player_embedded

New Privileges and Recommended Practices

60-Meter Operations Open March 5th

In November 2011, the Federal Communications Commission issued a Report and Order that substantially expanded Amateur Radio privileges on the 60-meter band. The new privileges will take effect on March 5, 2012.

Amateurs are permitted to operate on five frequency channels, each having an effective bandwidth of 2.8 kHz. See Table 1 below.

These frequencies are available for use by stations having a control operator holding a General, Advanced or Amateur Extra class license. It is important to note that the frequencies shown above are suppressed carrier frequencies – the frequencies that appear in your transceiver’s tuning display when your transceiver is in the USB mode.

Amateurs may transmit with an effective radiated power of 100 W or less, relative to a half-wave dipole. If you’re using a commercial directional antenna, FCC Rules require you to keep a copy of the manufacturer’s gain specifications in your station records. If you built the directional antenna yourself, you must calculate the gain and keep the results in your station records.

When using a directional antenna, you must take your antenna gain into account when setting your RF output power. For example, if your antenna offers 3 dB gain, your maximum legal output power on 60 meters should be no more than 50 W (50 W plus 3 dB gain equals 100 W Effective Radiated Power).

In addition to increasing the power amateurs can use on 60 meters, the Report and Order also expanded the number of legal operating modes: Upper Sideband (USB), CW, Digital. Each mode comes with its own requirements for legal operation on 60 meters.

Upper Sideband operation on 60 meters is simple. Just tune your transceiver to one of the channel frequencies shown in Table 1 and operate, being careful that you do not overmodulate and create “splatter” that would fall outside the 2.8 kHz channel bandwidths. If your transceiver allows you to adjust your maximum SSB transmit bandwidth, setting it to 2.4 kHz should keep you well within the legal limit.

CW operation must take place at the center of your chosen channel. This means that your transmitting frequency must be 1.5 kHz above the suppressed carrier frequency as specified in the Report and Order (see Table 1). Operating at strict

channel-center frequencies may come as a disappointment to many, but cooperating with the NTIA is key to expanded privileges in the future. See Table 1 for channel center frequencies.

Consult your transceiver manual. Some transceivers transmit CW at the exact frequencies shown on their displays, but others offset the actual transmission frequency by a certain amount (for example, 600 Hz). If your manual is not clear on this point, contact the manufacturer. If you have access to a frequency counter, this is an excellent tool for ensuring that your CW signal is on the channel center frequency.

Digital Operation: Our expanded privileges on 60 meters were the result of collaboration between the FCC and the NTIA – the National Telecommunications and Information Administration, the agency that manages and coordinates telecommunications activities among US government departments, the primary users of the band. The NTIA expressed concern about possible interference and requested that amateurs limit digital operating to PSK31 and PACTOR III only.

It is certainly possible to interpret the FCC Report and Order somewhat broadly as it

concerns digital operating on the band, but be careful not to read too much into the text. For example, while the Report and Order mentions RTTY, it also specifies that the signal must be less than 60 Hz wide. This is too narrow for amateur teletype signals. Only a much

narrower mode such as PSK31 (about 50 Hz wide) meets this requirement.

With an eye to the potential for expanded 60 meter privileges in the future, the ARRL believes it is critical to cooperate fully with the NTIA. Therefore, the ARRL asks all amateurs to restrict 60-meter digital operations to PSK31 or PACTOR III.

With PSK31 you must operate on the following channel center frequencies ...

The easiest way to achieve this is to place your transceiver in the USB mode and tune to one of the suppressed carrier channel frequencies shown in Table 1.

With your PSK31 software display configured to indicate audio frequencies, click your mouse cursor at the 1500 Hz mark. With your radio in the USB mode, this marker indicates the center of the channel and it is the frequency on

CH	USB	CW	PSK
1	5330.5 kHz	5332.0 kHz	5332.0 kHz
2	5346.5 kHz	5348.0 kHz	5348.0 kHz
3	5357.0 kHz	5358.5 kHz	5358.5 kHz
4	5371.5 kHz	5373.0 kHz	5373.0 kHz
5	5403.5 kHz	5405.0 kHz	5405.0 kHz

New Privileges - cont'd from page 6

which you should be transmitting.

PACTOR III operation on 60 meters is straightforward. With your transceiver in the USB mode, tune to one of the suppressed carrier channel frequencies shown in Table 1. Note that only live keyboard-to-keyboard operation of PACTOR III is allowed. Unattended automatic operation is not permitted.

Because amateurs are only secondary users on 60 meters, we are required to yield to other services. In other words, if you suddenly hear a non-amateur transmission on the channel, you must cease operation on that channel immediately. Always listen before transmitting. If you hear another signal on the channel, whether it is a signal from an Amateur Radio or government/private station, don't transmit.

As amateurs exercise their new 60 meter privileges, a more detailed and specific channel occupancy plan may become clear. In the meantime, follow these tips to share the channels as efficiently as possible.

- Keep your transmissions as short as possible with frequent breaks to listen for other signals.
- Although split-channel operation (transmitting on one channel and listening on another), is permitted under the rules, this is considered poor operating practice on 60 meters because it effectively ties up two channels at once and increases potential interference. If you must operate split channel, monitor your transmit channel for other signals.
- To locate a clear channel, USB operators should begin at Channel 5 and move down (if necessary) to Channels 4, 3, 2 and 1 until a clear channel is found. CW and digital operators should reverse this pattern, beginning at Channel 1 and moving upward until a clear channel is found.
- If you hear a digital signal and you're not sure if it is an Amateur Radio signal, don't transmit; move to another channel instead. Most primary users on 60 meters operate USB or wide-shift digital signals, so they are relatively easy to recognize. To help you identify the sounds of popular amateur digital modes, see the Get on the Air with HF Digital web page at www.arrl.org/hf-digital.
- Take care when using narrow receive filters, such as when operating CW. To be in compliance you need to be able to hear other stations that may begin operating on the channel.
- Over the years, Channel 5 has become a de facto international DX channel. With that in mind, avoid domestic QSOs on this channel when possible.

This information is current as of Version 6.4 – February 23, 2012. Modes and frequencies are subject to change.

BREAK - OVER

Anonymous Power Grid Attack

NSA Reportedly Concerned

The National Security Agency (NSA) is apparently concerned that Anonymous will try to take down the nation's electrical grid via a cyberattack, according to a new report.

Anonymous, however, says the claims are just fear-mongering.

Gen. Keith Alexander, director of the NSA, discussed the possibility of an Anonymous-led attack in meetings with the White House and other officials, according to the *Wall Street Journal*. Alexander has not publicly discussed the power supply angle, but has mentioned Anonymous' ability to go after computer networks, the *Journal* said.

When asked for comment, an NSA spokeswoman said "it wouldn't be appropriate for us to discuss any alleged comments or internal meetings." Anonymous, however, insisted that it has no plans to disrupt the electrical grid.

"Ridiculous! Why should Anonymous shut off power grid? Makes no sense! They just want to make you feel afraid," according to a post on the AnonOps blog.

The NSA news comes amidst reports that Anonymous also had plans to shut down the Internet on March 31, something the group also denied. "GlobalBlackOut is another Fake Operation. No intention of #Anonymous to cut Internet," @AnonOps tweeted recently.

Indeed, that would be rather bizarre, given the fact that those associated with Anonymous have fought quite hard to maintain openness on the Web. The group was a vocal opponent against the Stop Online Piracy Act (SOPA) and the PROTECT IP Act (PIPA), and has launched distributed denial of service (DDoS) attacks against groups attempting to shut down websites over copyright infringement, like Megaupload.

But while Anonymous might not have plans to take down the Internet or our electrical grid, the group has gone after the websites of U.S. agencies with whom it disagrees. In the wake of the Megaupload takedown, Anonymous launched successful DDoS attacks against the Department of Justice website and earlier this month, it also took down the CIA website.

This is not the first time the government has tangled with Anonymous, meanwhile. Back in October, a Department of Homeland Security (DHS) memo said Anonymous is probably not yet organized enough to carry out a devastating attack on an critical infrastructure here in the U.S., but given time and resources, it might be possible.

BREAK - OVER

Quick Training Tips

Directed Net Check-in

Our objective in ARES emergency communications is first and foremost, Accuracy. This is followed closely by our second objective, Speed. The procedures we have developed and practice in our weekly net and exercises all work to support these two objectives. We operate in a directed net format because it supports our objectives.

The procedure for checking into a directed net begins with using your ears. LISTEN to the direction of the Net Control Station (NECOS) when he asks for check-ins or additional stations. Follow these directions when checking in. The NECOS has the discretion to ignore stations that do not follow his direction during check-in and disrupt the net. Put yourself in the sole of NECOS. Would you want to admit a station to a directed net that cannot follow the simple directions for check-in? I don't think so.

Our ARES NECOS use a script for our weekly training net that can be easily modified for use during an actual event. This helps everyone become comfortable with the directed net process. When asking for check-ins the NECOS says, "*Additional stations for the Scott County ARES net please call [NECOS Callsign], state your callsign, first name, location, and precedence and destination of your messages. This is a directed net. All stations use the proword OVER or proword OUT at the end of your transmission. (OVER)*"

The NECOS is specifying the minimum information he needs to make effective use of your station in an emergency. Think about it; Callsign, Name, Location, Traffic. Pretty basic stuff.

Those of you who regularly serve as NECOS realize that after the call for check-ins you are busy writing down the information from each station checking in. When two stations call at the same time or when the calling station provides additional comments or omits information valuable time is lost. Stations checking into the net can solve this problem.

When you are going to check in to a directed net, before you transmit, stop just a moment and think! Do you understand the NECOS's directions? Do you know what you are going to say? Let's see how the exchange should go. Assume that W0NFE is NECOS for this example (thanks for volunteering Bob).

"W0NFE" (unkey the mic briefly to see if you are doubling with another station) "*this is N0BHC, Bob, in Savage, No traffic, OVER*"

cont'd col. 2

Did we follow the NECOS' instructions? Let's review. First, the NECOS says, "Call me." We comply by saying "W0NFE" (drop carrier) "this is N0BHC". Next the NECOS asks for name and location. We comply by saying, "Bob in Savage." Next is the request for precedence and destination of any traffic. We respond with, "No traffic" and end with the proword OVER.

We have just checked in to the directed net efficiently and rapidly. Let's not take the check-in process for granted because it is an important part of accurate, efficient operation.

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W1AW Tour on Demand

Did you miss the live W1AW tour on February 12th? You can view the recording of the webcast tour at: www.arrl.org/W1AW Thanks to Al Petrunti, KA1TCH, Joe Carcia, NJ1Q, and Geoff Fox, K1GF for their work on the webcast. You can also download the HD file of the tour, in .wmv format, at <http://p1k.arrl.org/pub/pr/>

BREAK - OVER



ARES Breakfast

Saturday, March 10th
7:30AM
Perkins Restaurant
Savage, MN

NECOS Schedule March 2012

5 Mar N0PI Dan
12 Mar W0NFE Bob
19 Mar KB0FH Bob
26 Mar KC0YHH Tony
2 Apr N0PI Dan
9 Apr W0NFE Bob