



# MINNESOTA MARSGRAM



February, 2004

Volume 8, Number 2

## NNN0ALL Minnesota

by NNN0GAZ Tim

Greetings to all,

Next time someone decides to have an emergency exercise could we pick something other than an ice and snowstorm? What was a really interesting joint exercise between Region 7 and Region 5 jump-started Old Man Winter and two days later I've just finished clearing over a foot of snow from my driveway. The last time I saw this much snow in one storm was January 2000. As I looked out the window on Saturday night – as the drill was ending what a shocker – snow was piling up and quickly. The usual twenty-minute drive from Faribault to Northfield was three times longer. On Sunday I monitored the Iowa traffic net, only to hear that in some parts of their state they were chipping away at more than a half inch of ice on Sunday morning. Hmmm, what if all of this had been for real – would we have been able to respond, how many members would we have gotten on the air?

I like many other members have commitments outside of MARS, and I can accept that not everyone can participate in every drill. However, I do make an effort to participate in as many drills as I can and I encourage others to do so as well. On Saturday, January 31, Minnesota fielded three

committed members and their stations to participate in exercise Black Ice. Bravo Zulu to Al (KZC), Bob (XYA) and Bruce (BQH) and thanks for representing us in the exercise. These three members generated and passed traffic by voice and PSK, and utilized the 5G1B net and the Army MARS repeater in the Twin Cities metro area to get the job done. They were present to assist other states participating in the exercise.

The question remains could more stations have participated? What is it about emergency communications that can clear a room faster than someone yelling “fire”? Are members afraid of making mistakes in formatting EEI and SITREP messages? The MN ECOM plan has the formats laid out. Fill in the blanks and you have your message ready. Don't know the proper routing? Ask, no one will criticize you for asking. So what if you make a mistake, that is why we have exercises to train, prepare, find out where we need more work. Is it the time commitment? The Black Ice exercise was the ideal exercise. To participate simply show up for the

evening net with an EEI and SITREP message ready and pass it to the out-bound traffic rep. Minnesota's commitment in the exercise, the duration of the 5G1B net, one hour. Couldn't make that net – check in to one of the other nets in the Central Area – Wisconsin, Illinois, Indiana and Ohio all had nets operating at some point during the period. Tired of emergency communications or the “storm” theme of the drill – make a suggestion for an exercise we're all ears.

Think of MARS participation as community service – this is the way I view it, I'm giving something back to my community – on a daily basis many people don't know that I commit this time unless they've received a MARSGRAM from a friend or a relative away from home. When a communications emergency arises, those that need us – agencies that depend on the ability to communicate will recognize and appreciate the value of trained communicators.

*GAZ Cont'd page 2*

The MINNESOTA MARSGRAM is published for the benefit of Amateur Radio Operators in Minnesota and other interested individuals. The contents DO NOT reflect official Navy positions.  
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### MINNESOTA TRAFFIC NETS

Designator	Frequency	Local Times
5G1B	Pri. NCE Sec. NBG Ter. NAR	18:30 Daily

### MINNESOTA ADMIN. NET

5G4A	Pri. NCE	19:00 2nd Sunday
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### MARS DATA SYSTEM

Frequency	NCE AFSK/USB
NN0DVD	
Intranet site	<a href="http://www.communityzero.com/mnmars">http://www.communityzero.com/mnmars</a>



# The Towering Solution

The answer is 95.228 Feet. How this value is found is as follows.

Algebra problems with numerical values are often simplified if a new unit of measure is chosen so that small numerical values result. Let 25 feet in Figure 1 be made equal to 1 unit of length. The OB in Figure 2 becomes 2 units of length, OD becomes 4 units and EF is 1 unit.

Since the hypotenuses of triangle AOB and COD in Figure 2 are equal, we have:

$$H^2 + 2^2 = h^2 + 4^2 \quad \text{or}$$

$$H^2 - h^2 = 12 \quad (1)$$

Now turning to the triangle COD, we obtain the proportion:

$$(FD):1 = 4:h \quad \text{or}$$

$$(FD) = 4/h \quad (2)$$

Similarly, in the triangle AOB:

$$H:2 = 1:(FB) \quad \text{or}$$

$$(FB) = 2/H \quad (3)$$

Now, subtract (3) from (2), noting in Figure 2 that (FD)-(FB)=2, then solve for h

$$h = \frac{2H}{(H+1)}$$

We can substitute (4) into (1) to obtain

$$H^2 - \frac{4H^2}{(H+1)^2} = 12 \quad (5)$$

Solving Equation (5) will give us the height of the antenna. This equation is easily solved by "guess and try" using a calculator. Although algebra books will tell you to change equation 5, it is not recommended. A simple programmable calculator with at least 32 program steps could be used to set up the equation on the left side of equation (5). After the program is set up, one would find that an answer of 3.80914 units for H is obtained. If you do not have access to a programmable calculator, it will take longer but this is still the most practical way of solving Equation (5).

Multiplying 3.80914 units by 25 changes the units back to feet giving 95.228 feet as the height of the tower.

For those that like a challenge or revisiting their college calculus, the equation can be solved using Newton's Method For Solving Equations (or more correctly the Newton-Raphson method). The method presented here is from *Calculus & Analytic Geometry* by Thomas/Finney 5<sup>th</sup> Edition published by Addison Wesley. The method is:

1. Guess a first approximation to a root of the equation  $f(x) = 0$ . A graph of  $y = f(x)$  will help.
2. Use the first approximation to get a second, the second to get a third, and so on. To go to the  $n$ th approximation  $x_n$  to the next approximation  $x_{n+1}$ , use the formula

$$x_{n+1} = x_n - f(x_n)/f'(x_n)$$

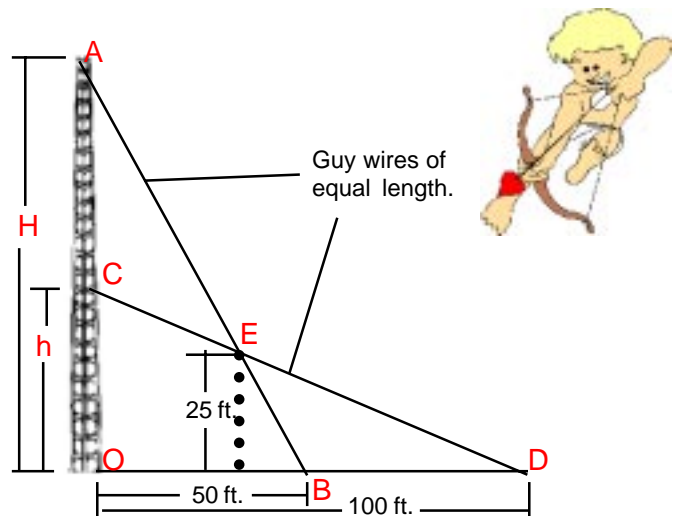
To eliminate the fraction in equation (5) multiply through by  $(H+1)^2$

This will give you the following equivalent equation

$$H^2(H+1)^2 - 4H^2 = 12(H+1)^2$$

Expanding this equation out will yield

$$f(H) = H^4 + 2H^3 - 15H^2 - 24H - 12 = 0$$



Taking the first derivative of H in the equation will yield the following

$$f'(H) = 4H^3 + 6H^2 - 30H - 24$$

(since 12 in the previous equation has no variable associated with it, and the derivative of a whole number is 0, the 12 is eliminated)

If we substitute 3 for H in the f(H) formula we arrive at:

$$f(3) = 4(3)^4 + 2(3)^3 - 15(3)^2 - 24(3) - 12$$

$$f(3) = 81 + 54 - 135 - 72 - 12$$

$$f(3) = -84$$

If we substitute 4 for H in the f(H) formula we arrive at:

$$f(4) = 4(4)^4 + 2(4)^3 - 15(4)^2 - 24(4) - 12$$

$$f(4) = 256 + 128 - 240 - 96 - 12$$

$$f(4) = 36$$

The answer appears to be closer to 4 than 3, -84 is further from 0 than 36, so pick the closer of the two approximations which is 4.

We substitute 4 for H in the f'(H) formula we arrive at:

$$f'(4) = 4(4)^3 + 6(4)^2 - 30(4) - 24$$

$$f'(4) = 256 + 96 - 120 - 24$$

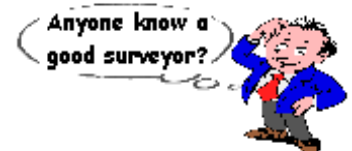
$$f'(4) = 208$$

We now know that the number is between 3 and 4, and is closer to 4. Using Newton's approximation then

n	$H_n$	$f(H_n)$	$f'(H_n)$	$H_{n+1} = H_n - \{ f(H_n) / f'(H_n) \}$
0	4	36	208	$H_{0+1} = 4 - (36/208) = 3.8269231$
1	3.8269231	3.0529	173.2507	$H_{1+1} = 3.8269231 - (3.0529 / 173.2507) = 3.8092998$
2	3.8092998	.02933	169.88899	$H_{2+1} = 3.8092988 - (.02933 / 169.88899) = 3.8091272$
3	3.8091272	0	169.85625	$H_{3+1} = 3.8091272 - (0 / 169.85625) = 3.8091272$

n = number of approximations

Multiplying 1 unit which was equal to 25 feet by the approximation 3.8091272 will yield an answer of 95.22818 feet for the tower height.



## FORMER SAILOR SHARES INSIGHT ON PROTECTION AGAINST DIRTY BOMBS

Timmi Toler  
Community Editor

### The Liberty

*The following article appeared in the February 19, 2003, issue of "The Liberty," a military newspaper in eastern North Carolina. It is an interview with health physicist Larry Grimm regarding the facts about "dirty bombs" and how to protect yourself. This is an excellent summary, and touches on other common-sense means of protection in the case of a chemical release. Please feel free to share this information with your friends and colleagues.*

With recent reports that radiation detectors are being tested in our community, many residents are wondering how to be prepared or what to do in the event that a radiological dispersion device (or "dirty bomb") is detonated. The Liberty turned to Larry Grimm for some answers. Grimm, a former Navy Reservist who served as a corpsman with the 1st Marines, Recon Battalion, Alpha Company, is now the senior health physicist for the Radiation Safety Division at UCLA. He has 27 years experience working with a wide variety of radioactive materials and their uses. He offered his personal insights to the following questions to help equip citizens with what he considers the most effective tool available in the fight against terrorism - knowledge.

#### **Q: What is a radiological dispersion device?**

A: It is a weapon designed to spread radioactive material over an area. Radioactive materials can be spread via a conventional ("dirty") bomb, an aerosol device or through waterways.

#### **Q: What is the biggest concern from a radiological dispersion device?**

A: Two things: the irrational fear it can induce and the expense of cleanup. The possibility of the radiation actually hurting anyone is quite small. We fear what we do not understand, sometimes irrationally. The concepts of radiation are poorly taught in high school, and the only other radiation information we get has been sensationalized by Hollywood, politicians, and those looking to make a buck off of our lack of education. You can beat the fear by learning how radiation works and how to manage it safely (protection techniques). Fear and panic kill people, as any good Marine knows. Radioactive materials are chemicals. Sometimes it is easy to clean them up, sometimes hard. For example, cleaning oil off concrete is hard, but picking up chunks of metal is easy. Fortunately, it only takes a radiation detector to find the radioactive material, so it is easier to find and clean up than a non-radioactive chemical. Likely, the biggest problem will be economic disruption while cleanup takes place. Radiation dispersion devices are really disruption, not destruction, weapons.

#### **Q: How will I know if something is a radioactive device/bomb?**

A: You won't know until someone checks and announces it. Most police and fire vehicles carry radiation detectors these days and the announcement is likely to be made quickly. If a bomb went off, I would presume the worst and start practicing the protection techniques listed below. The techniques are also applicable, to a certain extent, if there is a chemical or biological agent, however, there are a few important differences. For example: if you suspect a chemical agent, do not seek shelter in a low space (like a basement). Most chemicals are heavier than air and will settle in low spaces.

#### **Q: What steps should I take if a radiological dirty bomb goes off in the area?**

A: There are four simple protection techniques: Contamination control, distance, shielding and time. Contamination control and distance are the most useful techniques in a bomb situation.

Also, remember to help others first. Radioactive materials are rarely immediately life threatening. The worst-case terrorism scenarios indicate that there would not be enough radioactive material to cause immediate harm. Did you ever feel anything or see an effect from getting an X-ray? In 99.999% of radiation exposures, no effect is felt or seen. If I went towards the blast area to help someone, I would not fear the radiation. However, I would be cautious and respectful of the radiation. Therefore, I would use the following techniques - no matter if I was escaping the area, trapped in the area, or going in to help.

Contamination control: Keep the radioactive chemical off and out of your body. Button up clothing and wear a mask (or anything to cover nose and mouth.) A radioactive material is always a chemical, which behaves like the chemical wants to behave. The distance technique is the best protector in a dirty bomb scenario. If I need to be near the source, or if I am down- wind of the blast, I will first practice contamination control. If I suspect that I swallowed or inhaled the chemical, but do not feel ill, I would later seek professional help. Radiation effects take a long time to show up, and I wouldn't want to add to the congestion at the hospital. However, there could be a nasty chemical associated with a radioactive bomb, so if I felt even slightly ill, I would seek medical help in a hurry.

## **Dirty Bomb:** cont'd from page 4

**Distance:** In even the worst bomb scenario, you would be safe from the radiation if you get just a couple blocks away and get upwind of potential airborne material. Think of it as standing next to a campfire - get too close and it could burn you, but if far enough away, you do not get any heat. Exactly like a campfire, you do not want to be in the smoke - so get upwind. The most likely radioactive material in a dirty bomb would be cobalt or Cesium. If the terrorist could somehow manage to get 10,000 Curies in the bomb, you only need to be about 300 yards (three football fields) away to be safe from the radiation. If you are not downwind or near the dispersion area, you are safe. Do not "head for the hills". Leave the roadways open so emergency responders can get through.

**Shielding:** Anything acts as a shield - a building, a car, a hill, et cetera. Your major concern is gamma radiation. Imagine the gamma as a radio wave. When don't you get a radio signal? When you are in the middle of a building, in a basement, behind a hill, et cetera. Whatever shielding decreases a radio signal will decrease gamma rays. I handled 12 million curies of Cesium (a 1000 times more than a possible bomb) with a mere 20 feet of water for shielding, and I got no dose!

**Time:** The less you are around the radiation, the less dose you will get. As most people would use distance, and get away in a hurry, they already used the time technique by not hanging around the radiation. Emergency responders may need to use this technique, and all across the US, they are receiving training on how to use it.

### **Q: If you suspect the chemical is on your clothes or body, what should you do?**

**A:** First, simply remove the clothing. Take off the clothing, put it somewhere distant, and you will get no exposure from what is on the clothes. A common myth is that if radiation hits someone, they become radioactive. The reality is the radioactive chemical that makes you radioactive, not the radiation, so you want to keep the chemical off yourself.

Second, wash or shower. Most radioactive materials are easily washed off. Another common myth is that you need to scrub hard to get radioactive material off you. In actuality, you should wash lightly and frequently. Scrubbing hard can abrade the skin and push the chemical into the body. When I practiced Nuclear Medicine, almost every day I got radioactive material on my index finger. With a light washing, it went away every time. Twenty-five years later, my finger is just fine, and still willing to point a Marine towards the vaccination line (a corpsman's pay back for being called "squidly")!

### **Q: If I am trapped in my house with my children and downwind of the dispersion device, what do I do?**

**A:** How do you keep dust and cold air out of your house? Simple - make sure things are shut tight. It's the same with radioactive materials. Stay put and hunker down. The downwind concern is that the radioactive chemical is airborne. Keep the chemical out of your house and you will be quite safe. Keep doors and windows closed. You might move to the middle of the house or basement, which uses the distance and shielding protection techniques, in case there are levels of radiation nearby. If you must go out, use the time technique and do your task quickly. If the radioactive chemical is heavy, or it is raining, the chemical will not travel far by air, so if you are more than a mile away, there would likely be no problem. In the likely scenarios which use Cobalt or Cesium, they are heavy and do not travel too far in the air. Listen to your radio, as emergency information services should soon tell you if it is safe to go out. Boredom will be your biggest problem.

### **Q: If I am outside and down- wind of the blast and cannot move quickly, what do I do?**

**A:** Get into the nearest building and do what you would do in your house - keep things shut and move to middle room or basement areas. Get in or stay in your car with windows up and fresh air vents closed. You will keep the chemical out, and the car provides some shielding. If it is hot in the car, recirculating air conditioning is okay to use. If you can move the car, drive a few blocks away.

### **Q: Will my food become radioactive?**

**A:** Not if it is sealed or covered. Again, another myth about radiation is that it causes other things to become radioactive. The truth is this only happens if the chemical gets on it. I would keep bottled water and a few canned goods for emergencies, but the way food is packaged these days, the foods in your cupboards/refrigerator will be just fine. For extra measure, you can rinse things off before you open/use them, but most likely this is not necessary if you have kept the house closed up.

### **Q: What should I get to prepare for a dirty bomb?**

**A:** Not much. Keep some bottled water on hand and a portable radio. Do not buy a radiation meter. Do not buy special contamination suits. Do not buy gas masks. Only trained professionals should have these things. Untrained people have been hurt by these things. Can you imagine the horror and grief of a child suffocating in a gas mask,

## Dirty Bomb: from page 5

especially if the radiation was three miles away? The simple protection techniques are all you need. They work. I know. I use them every day in my work. Use your common sense when applying the techniques and you, and your children, will be very safe.

### Q: What are the odds of a radiological dispersion device going off in my area?

A: Pretty slim. A radiological dispersion device is unlikely to kill anyone, unless it is a bomb and the person is in the blast area. Therefore, it is a poor “mass destruction” weapon. On the other hand, it can disrupt things badly, particularly if we respond with fear and panic. Although not hard to build a radiological dispersion device, it is difficult to carry around the large quantity of radioactive material necessary.

### Q: What if the radioactive material is put in our water supply?

A: Being a chemical, the radioactive material will dilute in the water. Without going into technical reasons, suffice it to say that by the time it got to your house, there wouldn't be enough to pose a real risk. Smoking one cigarette probably poses more risk than the amount of radioactive material that you could ingest in this scenario. We ingest naturally occurring radioactive materials every day of our lives. Likely by the time it got to you, the terrorists' material would be a pittance of what you normally, naturally take in. Another common misconception is that man-made radioactive materials are different and more dangerous than natural materials. However, there really is no difference. Man-made and natural radioactive material effects are the same. Our bodies are adapted to handling the effects of low levels of radiation, which we receive every moment of our lives. If it is suspected to be in the water supply, and you are concerned, use bottled water. I would likely have no fear of showering with the tap water.

### Q: Any final thoughts?

A: Please teach these simple things to others. As more people learn how easy it is to protect themselves from a radiological dispersion device, our collective fear levels decrease.

Learn about radiation, and the fear of it will melt away. As a youngster, I feared electricity, but I learned it can be handled safely. I now respect it, but do not fear it. The same is true of radiation: respect it, but do not fear it. Terrorists feed on fear. Fear is bondage, knowledge is freedom.

BT OVER

## Sending Traffic through the Mars Data System (MDS)

The reorganization of the MARS Regions and Areas made it necessary to make changes to some of the files that are contained within in the AA4RE program which handles the traffic in the MARS Data System. As a result, some changes are necessary in the way you send traffic to the switch.

In the November 2002 *Minnesota MARSGRAM*, the Training Corner contained an article titled “Connecting to the Region Data Network (RDN).” If you wish to compare the new procedures to the old procedures, please reference the November 2002 Minnesota MARSGRAM Training Corner.

### Connecting to the MDS

Using your favorite PACTOR software, you will call the switch using NNO<last three letters of the switch call sign>. The Region Five MDS listing can be found in the Minnesota Area Emergency Communications Plan Annex G. You will know that you are logged into the switch when it sends you the system prompt:

CONNECTED to NN0[*last three letters of the MDS callsign*]

WELCOME TO THE NNN0[*last three letters of the MDS callsign*] NAVY-MARINE CORPS MARS MULT-MODE BBS

NNO[*last three letters of your MARS callsign*] DE

NNNO[*last three letters of the MDS callsign*] {# of messages} >

Example:

```
<PACTOR STANDBY>
CONNECTED to NN0DUD
WELCOME TO THE NN0DUD NAVY-MARINE CORPS MARS MULTI-MODE BBS
NN0XEE DE NN0DUD 14 MSGS >
```

Up to this point all the procedures have been the same. Now if you want to send a message, you need to inform the switch of the precedence of your traffic and address it to MULTI (this is the change), regardless of whether the message is going to one person or many.

At the prompt you enter the precedence according to the following:

MDS Precedence	VoiceNet Precedence	Definition
SZ	Z	Flash
SY	O	Operational Immediate
SX	P	Priority
ST	R	Routine

## Traffic - cont'd from page 7

Example - for a routine message to the Region FIVE

Director, at the prompt

NNOXEE DE NNNODVD> ST MULTI

The switch will respond:

SUBJ:

Now send the subject line:

1 R MULTI <Use Enter Key>

The switch will respond:

ENTER MESSAGE, WHEN DONE, TYPE CTL-Z

(editor-control Z) OR ZZZZ AND <ENTER KEY>

(ENTER YOUR MESSAGE NOW)

### Notes from the Sysop

- **Do not** compose the message while you are connected to the switch. This is time consuming and prevents other users from accessing the switch. Use a text editor to compose your message prior to connecting. Save the your message as a text (ASCII) file, and when the switch indicates for you to enter your message, use your PACTOR software to do an ASCII file transfer.
- Keep the following in mind when composing messages - the line length cannot exceed 69 characters per line and the message can be up to 100 lines in length. If you have the need to send a message longer than 100 lines, divide your message into multiple parts and indicate this in the subject line of each message.
- You may wish to find a text editor that does count the cursor location when you are composing a message.
- When your message has finished transferring, you need to use CTL-Z (Control key + Z) or type in the four CAPITAL Zs (ZZZZ). The CTL-Z or ZZZZ automatically files the message and the system will respond with a message number and filed.

Example:

<Message header>

<your message>

ZZZZ

Switch responds:

MSG 556 FILED NNOXEE DE NNODVD>

At this point you can disconnect from the switch with a "B" for bye, send another message, or query the switch for a traffic listing.

The new procedures does not eliminate your need to know the routing designator(s), you no longer have to enter these in the initial instruction to the switch. Routing designators have changed from being Region Designators to Area Designators. These do need to be correct and in the routing line of your message header.

With the restructuring, routing designators have changed since now they refer to Areas rather than Regions. Next month we will review the routing designators and the structure of administrative as well as third party messages. In the mean time, if you have any questions, please feel free to contact your sysop.

BTOVER

## USS Cole Port Visit



Souda Bay, Crete, Greece (Jan. 21, 2004) — The guided missile destroyer USS Cole (DDG 67) arrives for short port visit. This is USS Cole's first deployment since a terrorist attack on the ship killed 17 crew members and injured 39 other while refueling in the port of Aden, Yemen. The ship was repaired by the Navy's Supervisor of Shipbuilding, Repair and Conversion (SUPSHIP), Ingall's Shipyard, Pascagoula, Miss., for an estimated \$250 million. Cole is part of a three ship Surface Strike Group (SSG) assigned to USS Enterprise (CVN 65) Carrier Strike Group (CSG). U.S. Navy photo by Paul Farley.

-BT OVER



## Double DigiPan?

Have you ever send a "CQ" on 14.070 mHz using your MARS callsign? Or, how about checking into the MN PSK net with your ham callsign? Come on now, let's be honest! Wouldn't it be a lot more convenient to have two installations of DigiPan on the PC? One for MARS work and one for Amateur QSOs.

You can't simply "install" the software twice. That would be too easy. The problem is that DigiPan, by default, creates an INI file that includes all your settings. The INI file is called DIGIPAN.INI, and it's located in your WINDOWS subdirectory.

The solution is to create a second copy of DIGIPAN.EXE, but rename it. When the program runs, it creates the INI file with the same basic filename. DIGIPAN.INI is created, because the executable file is called DIGIPAN.EXE. If you rename a second copy of the file MARSDIGI.EXE (make sure you keep the .EXE extension), it would create a second and separate MARSDIGI.INI file. The second copy doesn't even have to be in a different subdirectory.

Now, go ahead and set up those macros just for MARS operation!

BTOVER

## 5G1B Net Schedule

6:30PM 4007 kHz USB

Day	NECOS	Tfc Rep
Sun.	XYA	XEE
Mon.	KZC	KZC
Tue.	XEE	XEE
Wed.	BQH	BQH
Thu.	???	???
Fri.	ACY	OCF
Sat.	Rotating Duty	
Feb 7	????	???
Feb 14	ACY	OCF
Feb 21	XYA	XEE
Feb 28	KZC	KZC

**There is an opening for the Thursady evening NECOS and Traffic Rep. through March 24,2004. The NECOS station does NOT require digital capability. If you are not currently in the rotation, consider picking up a couple of net sessions. Contact XYA or XEE if you are available for any of the open sessions.**

Don't be bashful, if the net has not been called by the net control station within 2 minutes, jump in and start things rolling.

## Minnesota QSO Party

1400-2400 UTC (8AM-6PM CST)  
07 February 2004

### Contest Rules:

**Time:** Contest runs from 1400 until 2400 UTC (8 AM to 6 PM CST) 07 February 2004.

**QSO Rules:** MN stations work everyone, all other W/VE & DX work MN stations. Work stations once per band & mode. MN mobiles may be worked once per band & mode from each county, & MN mobiles may work stations once per band & mode from each

**Bands/Modes:** HF classes: 160m-10m (excluding WARC bands), CW/RTTY/SSB only. VHF Classes: 6M and above, CW/FM/SSB only (no repeater QSOs).

## Test Your Analytical Skills Surplus Store

Courtesy of The Electron, Cleveland Institute of Electronics

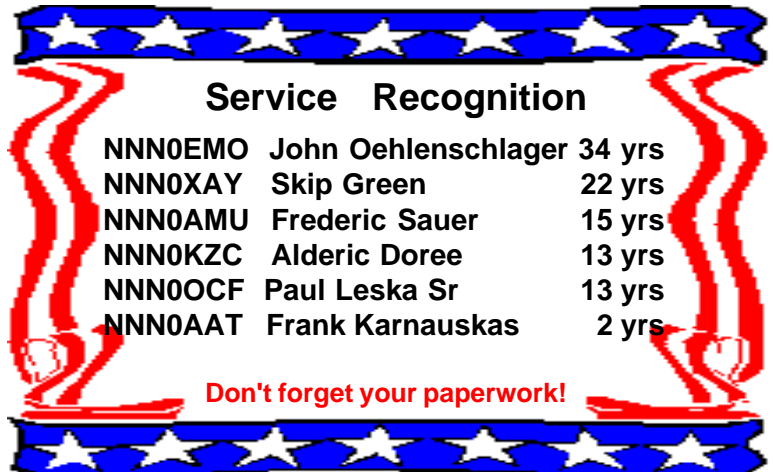
"I spent \$3.00 at the surplus store. The transistor was twice as much as the inductor, which was twice as much as the capacitor, which was twice as much as the resistor.

What did the capacitor cost?"

The answer will appear in next month's MARSGRAM



NNN0XEE Tim Isom 2/18  
NNN0APD Bob Ross 2/28



### MN MARS Intranet site

<http://www.communityzero.com/mnmars>

**Exchange:** MN stations send name & county (two letter designator). \*\* NOTE \*\* MN Mobile stations must sign callsign with county two letter designator. W/VE & DX send name & state/province/country.

**Scoring:** Score 1 QSO point for SSB QSO, 2 QSO points for CW/RTTY QSO. Final score is QSO points total times multiplier total. VHF class, no repeater QSOs allowed. Multipliers for MN is MN counties (87 total) plus states/provinces (49 states excluding Minnesota + DC + 10 Canadian provinces + 2 Canadian Territories = 60 W/VE mults total); 149 max multipliers (all bands) for MN stations. Multipliers for everyone else are MN counties (87 total). DXCC countries may be worked for points only-no multipliers.

**Operating Classes-MN:** Single Op Low Power (100w or less), Single Op QRP (5 watts or less), Mobile/Portable, Multi Op/Single Transmitter, VHF. All classes mixed modes only.

**Logs:** Send logs (including summary sheet) by March 15th to [WA0MHJ@arrl.net](mailto:WA0MHJ@arrl.net) or mail to MNQP 4745-170th Lane NE, Ham Lake, MN 55304-5233 by 15 Mar 2003. Log & scoring summary sheet available on the Internet at [WWW.W0AA.ORG](http://WWW.W0AA.ORG).

BTOVER

**"Blessed is the man who, having nothing to say, abstains from giving us wordy evidence of the fact."**

George Eliot (1819-1880)