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Inside this issue:

ALMR Site Capacity Impacted During Funny River Fire

Of the 84 current ALMR sites, thirty-two (32) are three-channel sites, effectively providing two channels for voice and data traffic and one channel dedicated as the control channel providing the connectivity to the ALMR master site. Events, like the recent Funny River fire, involving multi-agency response in areas that are served by three-channel sites can dramatically increase call load and users in the area will experience increased busies.

In May, during the Funny River fire, voice calls jumped up by 200,000 calls and System busies increased by over 1,600 from the month of April. One Kenai Peninsula site in particular had over 700 busies in a week during the height of the fire. It is easy to see how an event of this nature affects the System. Call loads, such as this, are why it is imperative for all responding agencies to practice good radio discipline and ensure they utilize the System in a way that accomplishes their need to communicate, but provides everyone timely access to the radio resource, as much as possible.

Although a three-channel site in an area requiring a multi-agency response will undoubtedly experience some busies, it is possible for responders to mitigate the impact. Utilizing the radio only when it is absolutely necessary to do so is one such step. Assuming the transmission is necessary, another strategy is to make the radio transmission as short and concise as possible and plan what you are going to say before keying the push-to-talk (PTT) button on the radio. Finally, monitoring only the talk group you are assigned to at the incident is extremely important. For instance, if a responder monitors their home agency talkgroup on their mobile radio, while monitoring the Incident Command channel they are assigned to for the incident on their portable radio, when a transmission occurs on either of these talk groups, both channels on the site are utilized, thereby potentially denying other users the ability to transmit when they need to.

The Operations Management Office (OMO) monitors the System metrics from month to month and provides this information to the User Council as a means for determining if additional capacity at sites consistently experiencing an unacceptable level of busies should be added. Several three-channel sites impacted by last summer's wild land fires in the interior were recommended for an increase in channel capacity. One channel will be added to each ALMR site at Tok, Willow Mountain, Glennallen and Tolsona with funding by the State of Alaska Enterprise Technology Services (ETS).

The ALMR System Management Office (SMO), OMO and ETS will continue to monitor ALMR site usage and recommend the addition of channel capacity, as funding allows, with the end goal being a minimum of four channels at all ALMR sites.

(Article written by Mr. Del Smith, Operations Manager. Photo by Ms. Sandee Rice)

Time to Start Thinking About Replacing Your Subscriber Units

A large number of ALMR member agencies currently utilize Motorola™ XTS/XTL 1500, 2500 and 5000 subscriber units. As reported in an earlier Insider article, Motorola™ has announced that they will no longer support the 5000 model after December 31, 2018. Motorola™ has recently announced support for the 1500 and 2500 models will end on December 31, 2019.

This does not mean that the radios will stop functioning at that point. It simply means that if you have an equipment failure with one of the units, there won't be parts or service readily available from Motorola™. You may have to start cannibalizing some radios to keep the majority functioning. The ALMR System will continue to support these radio models into the foreseeable future.

Everything we continue to hear says FirstNet Broadband "Voice Push-to-Communicate" won't be available for several years system wide here in Alaska, if at all. This means you will need to continue supporting your land mobile radio communications requirements into the foreseeable future.

Those agencies utilizing other vendor radios should check with their radio vendor to determine the end of life (EOL) and end of support (EOS) for the models they use. The same continued ALMR support will apply for those subscriber units, as well.

Subsequently, agencies should start thinking about gradually replacing subscriber units now, so there isn't a large one-time capital investment required down the road. All indications are that the Federal grant funding, which was used to purchase a large portion of radios in the past, won't be available this time around, and that funding will fall upon individual agencies.

Since the time when the first subscriber units were purchased for ALMR System use, ALMR has acceptance tested multiple subscriber makes and models for use on the System. This has broadened the field of competition and pricing. A complete list of approved makes and models can be found on the ALMR web site at www.alaskalandmobileradio.com/radios.htm.

ALMR management does not recommend one vendor radio over another. It is up to individual agencies to determine the radio requirements/options they need and the make and model which will best fit their needs - as long as they are on the "Approved for Use on the ALMR System" list. Agencies should also ensure all future subscribers purchased are Phase II capable.

Most, if not all, vendors will allow the use of demo radios for agency testing to ensure they meet your requirements. Take advantage of this to ensure you won't have "buyer's remorse" down the road.

(Article submitted by Mr. Rich Leber, Operations Management Office Technical Advisor)

LED Lighting and Radio Interference

There have been several cases in the ALMR community where agencies have retrofitted their lighting systems with new light emitting diode (LED) lamps and experienced radio issues afterward. As commercial and home LED use increases we hear more stories about radio interference caused by LED lighting.

Newer LED technology has the advantage of much lower power consumption compared to traditional incandescent and compact fluorescent lamps (CFL). Most new commercial construction and retrofits are installing LED lighting. With electricity savings close to 50 percent over conventional lighting systems and life expectancies of over 20 years, we can only expect LED lighting to become more popular.

However, although today's LEDs are capable of longer life, and delivering high light output levels with very little power consumption, most need to be paired with a drive circuit to provide constant current source to operate in businesses and homes, and that's where the problem comes in. These switching drive circuits operate at higher frequencies in order to maintain efficiency and longevity. These factors contribute to the overall unwanted emissions from the individual lighting element, increasing the electro-magnetic (EMI) background noise. This EMI can wreak havoc on VHF radios and other receivers (TV, AM/FM, etc.). This interference is generally from 30 – 300MHz, or higher, which ALMR frequencies fall within.

EMI mitigation is considered by some vendors and contractors as an unnecessary expense and often overlooked or simply disregarded. Proper operation and safety concerns also make engineering a "quiet" design more difficult and expensive. So the cheaper LED lighting will potentially be the most problematic in terms of interference.

Couple the costs, with the lack of regulatory enforcement and oversight governing EMI of these devices, and you can see the potential problem this poses.

In the U.S., most products capable of causing interference used in offices and homes fall under (continued on page 3)

Tech Corner: Personal Use Generators

Many Alaskans have, or want to purchase, a personal generator for use at home when there is an extended power outage, or in preparation for the "The Big One."

The following factors should be considered prior to the purchase of a generator for home or business use:

- What do you want to power during the outage?
- How many watts are going to be required to accommodate your power requirements? (Make sure the generator produces more power than will be drawn by the appliances you connect.)
- How long of a run time are you looking for?
- Is the generator going to be gas or propane?
- Is there going to be a manual/auto transfer switch installed or are appliances going to be individually powered up via extension cords?
- Do you need a portable generator or one that is affixed to a concrete pad with a permanent cover?

Power consumption requirements can be found using your internet browser to locate an "appliance wattage guide." Some major appliances to consider are:

- Furnace/air conditioner
- Well pump
- Sump pump
- Refrigerator
- Freezer
- Lighting
- Television
- Microwave
- Health care needs
- Telephone and computer
- Cell phone chargers

If you don't properly size your generator, you may have to unplug certain items to run others, so you don't exceed the generator capacity.

Other items to consider:

- Keep a flashlight conveniently located so you don't break your neck getting to your generator in the dark
- Never attempt to run your generator over its rated capacity
- If your generator has electric start, make sure the battery is always fully charged
- Where is the generator going to be located while running? (Not in your home, carport or garage)
- Always operate your generator a minimum of five feet away from doors, windows and vents to avoid carbon monoxide (CO^2) poisoning
- Run the generator occasionally to keep the engine lubricated
- Rotate the gas occasionally to keep it fresh
- Allow time for the generator to cool down once the load has been removed
- Have a spare spark plug and engine oil in case the generator has to be run for an extended period
- Never try to power your home by plugging the generator output cord into a wall outlet, a practice known as "back feeding," it can lead to electrocution of utility workers or neighbors served by the same utility transformer
- When in storage, keep portable generators covered to keep out dirt and dust

A good generator is one that is never needed, but is ready if/when required. If in doubt of what you need, consult a licensed electrician for more information.

(Article submitted by Mr. Rich Leber, Operations Management Office Technical Advisor, with excerpts taken from Briggs & Stratton web site - www.briggsandstratton.com/us/en/generators/portable-generators/portable-generators-101/safety-first)

LED Lighting Interference (continued from page 2)

FCC Part 15 rules governing the amount of unwanted EMI that a product can produce, both conducted on power lines and radiated from the LED itself, to prevent interference to radio receivers and for the overall protection of the radio spectrum.

For most products, compliance with these rules is primarily based on the honor system, and requires the manufacturers be knowledgeable in the application of the rules and proper test methods. Common misinterpretation of the rules may lead manufacturers of LED lighting to address only the lower frequency conducted disturbance, or they consider themselves exempt from the rules altogether. This issue can only be addressed by the FCC when problem reports become widespread.

If your agency is considering new construction, or a retrofit of your current space, ensure that the lighting contractor involved is aware of LED interference to the VHF radio spectrum and that they only use US-manufactured LED lighting systems and are knowledgeable of, and prepared to mitigate, interference issues up front.

(Article submitted by Mr. Rich Leber, Operations Management Office Technical Advisor with excerpts taken from "Radio Interference from LED Lighting," J. Klinger, July 19, 2011.

Kenai and Kasilof ALMR Site Channel Increases

As mentioned in the article regarding the Funny River fire, the ALMR staff monitors voice call and busy metrics from all sites and provides that information to the User Council (UC).

With the increase in member agencies in the area in 2012, the three-channel sites at Kenai and Kasilof began experiencing an unacceptable increase in the number of busies.

The ALMR staff presented the statistics to the UC, who then requested Enterprise Technology Services (ETS) seek to identify funding to add two channels at Kenai and one channel at Kasilof.

During the twelve-month period between March 15, 2012 and March 15, 2013, the Kenai site had 788,439 voice calls and 8,745 busies and Kasilof had 339,263 voice calls and 1,185 busies.

After the new channels were added, the Kenai site had 889,665 voice calls and 14 busies and the Kasilof site had 339,663 voice calls and 42 busies from March 15, 2013 to March 15, 2014. (NOTE: Busies are reflected from mid-month to mid-month after the new channels were installed.)

In addition to providing funding for the channel additions, ETS has been engaged in updating, modernizing an increasing redundancy for the State of Alaska Telecommunications System (SATS) through a five-year Deferred Maintenance Program. SATS is the underlying microwave infrastructure that provides public safety-level network connectivity for all of the ALMR radio sites.

This summer, one key area of focus for System refresh and infrastructure improvements is the Kenai Peninsula. This modernization will improve connectivity, operational efficiency and provide a resilient and stable network platform to support ALMR in delivering mission critical voice communications in Alaska.

(Article submitted by Mr. Del Smith, ALMR Operations Manager)

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ALMR Training Contract Renewed

The State of Alaska contract to provide user training for ALMR member agencies has been renewed for the upcoming year (FY15 - July 1, 2014 through June 30, 2015).

For information on available training classes and scheduling, please contact the training coordinator, Mr. Joe Quickel at joequickel@5starteam.net or 907-227-5048.

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