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ALMR Help Desk

In Anchorage: 334-2567

Toll Free within Alaska (outside of Anchorage): 888-334-2567

E-mail: almr-helpdesk @inuitservices.com

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2013 Site Capacity Upgrades Completed

As previously reported, in calendar year 2013, three ALMR sites were selected by the User Council (UC) and the State of Alaska (SOA) Enterprise Technology Services (ETS) for capacity enhancements - Kasilof, Kenai and Peger Road.

As the System has grown over the years and the number of agencies increased, the three-channel sites have begun to experience higher traffic volumes and it only takes one significant event in the area to overtax the site. As part of their responsibility for System management oversight, the UC receives monthly updates from the Operations Management Office (OMO) on the number of System voice calls, data allocations, and voice call busies. The User Council looks at the affected sites and the general populous in the area and then makes a decision on where to recommend capacity increases that would benefit the most ALMR users.

In March 2013, the Kasilof and Kenai site upgrades were completed. Another site which saw a capacity increase was the Harding Lake site. Although no additional channels were installed, Channel 3, which had been disabled since 2007 due to a frequency conflict, was finally activated. The Peger Road site capacity increase was initially delayed for several months awaiting approval of frequencies from the FCC, and then delayed again until after the 7.13 System software migration had taken place. It was finally activated on December 23.

The UC, in conjunction with ETS is currently considering which sites should be next in line for capacity upgrades. Some sites under consideration are Glennallen, Tolsona, Nenana and Willow Mountain, which always experience a jump in busies in the summer months.

Agencies are encouraged to contact their UC representative to discuss coverage issues in their area or suggest possible areas for expansion of the ALMR System.

(Article submitted by Ms Sherry Shafer, ALMR Documentations Specialist)

Enterprise Technology Services 2013 Accomplishments

2013 marked another successful year for SOA ETS as they continued their focus on improving the existing infrastructure of the State of Alaska Telecommunications System (SATS), development of staff and improving internal processes. The following projects highlight some of those endeavors:

- SATS Organizational Restructure – On the Operations side of SATS, the maintenance technicians were moved into three teams, each with specific areas of responsibility, based largely on geography. Supervisors were put in place for each team to lead and manage work done by internal staff and contractors. Additionally, a central monitoring role was created to handle incident resolution from end to end, freeing up other teams to continue with their projects and maintenance. Since the reorganization, the morale of the Operations group has improved, the quality of work has improved and there has been a reduction in the number of outages/ incidents within the system.
- Parks Highway Microwave Upgrade – Implement diverse routing between Anchorage and Fairbanks using MPLS. Bandwidth has increased twofold and service was improved by providing alternate paths for the network and ALMR, the mission-critical voice service which depends on the SATS network. Customers such as AKRRC, DNR and DOT also benefit from the improved service.
- Donnelly Dome Installation – The addition of the SATS site at (continued on page 2)

Sensitive Communications - Does Your Agency Need Encryption?

As you are aware, ALMR is a P25 digital communications system. This makes it more difficult to monitor on high-tech scanners available to the general public, than previous conventional legacy systems, when communicating in the "clear," but it is not impossible. The Operations Management Office (OMO) recently learned of at least one individual utilizing a commercially-available digital scanner to monitor radio traffic being conducted by ALMR user agencies communicating in the "clear." The agency who advised the OMO of the activity became aware of it because the individual was transcribing the monitored radio transmissions and publishing the complete content on a Facebook™ page.

At the request of the agency, the OMO consulted Federal Communications Commission (FCC) officials to determine if there were any violations of FCC rules being committed by publishing the information gleaned from scanning on Facebook™. We have been advised it is not a violation of FCC rules or regulations, but the advice from the FCC is for responding agencies to utilize the AES encryption capability of ALMR. This will prevent publishing of sensitive information during medical responses and law enforcement activities.

Frequencies utilized by the repeaters at ALMR sites are readily available on the RadioReference.com website along with the frequencies of many, if not all, other communications systems. According to the information on its website, RadioReference.com claims to be the world's largest radio communications data provider, featuring complete frequency database, trunked radio system information, and FCC license data.

As previously stated, ALMR digital technology makes it more difficult to scan than previous systems, but the current digital scanners available to the general public have also become more efficient, particularly when a frequency database is pre-loaded. This allows the scanner to quickly locate and monitor the frequencies being sought.

Numerous Alaska law enforcement agencies on ALMR utilize AES encryption to ensure their communications are secure. Other agencies, who have not previously determined a need to encrypt their radio transmissions, may wish to consider it given the likelihood this particular individual monitoring ALMR radio traffic broadcast in the "clear" may not be the only one.

Please contact the ALMR Help Desk if you wish to learn more about encrypting your agency's communications.

NOTE: Statewide and Regional IC Zone interoperability talkgroups are not now, and will not be, encrypted.

(Submitted by Mr. Del Smith, ALMR Operations Manager)

ETS 2013 Accomplishments (page 1 continued)

Donnelly Dome allows for a full ring topology between Anchorage and Fairbanks, creating a robust second path for data to flow and improving communications traffic down the Richardson Highway.

- ALMR Successful Upgrade to 7.13 – This was the first major upgrade in many years and was done in close coordination with the ALMR SMO and OMO, the DOD, and the MOA. This affected approximately 25,000 ALMR subscribers in the State.
- SATS Dashboard Phase 1 Implementation – The Dashboard provides a consolidated view of the most critical monitoring information about our infrastructure, allowing SATS staff access to critical information from which key decisions can be made regarding severity and appropriate action to be taken.
- Preventive Maintenance and Inspections (PMIs) of over 50 helicopter-only access sites and 70 drive-to sites; towers, antennas, shelters, generators, battery plants are all subject to the harsh conditions of Alaska. It is important that SATS visit our sites at least once per year to performance maintenance to ensure the sites have stable power for communications. Components within the communications shelters also need to be checked regularly and replaced, as required.
- Customer Sponsored Projects:
  - Susitna-Watana Dam Two-Way Radio Project – SATS was able to respond very quickly to build and implement two-way radio communications for an important project to both the Governor and the State of Alaska.23
  - Department of Natural Resources (DNR) – Forestry ALMR Dispatch/Console Consolidation. This work allows DNR-Forestry to greatly improve their mission-critical communications and coordination, particularly during fire season.

For 2014, ETS/SATS is preparing for another busy season of deferred maintenance improvements to the underlying network infrastructure, which ALMR depends upon. We are also working with the ALMR OMO and SMO on addressing the need for new coverage and coverage remediation identified by the ALMR User and Executive Councils.

(Article submitted by Mr. Max McGrath, ETS SATS Manager)

Tech Corner: Maintaining Portable Radio Battery Health/Life

There are currently three battery types in use in ALMR portable radios. They are: Nickel Cadmium (NiCad), Nickel Metal Hydride (NiMH) and Lithium Ion (Li-Ion). Many agencies utilize a mix of these three battery types depending on their specific mission requirements, funding and purchasing cycles. Each battery has different charging and capacity characteristics.

The battery life cycle can be extended through proper charging, discharging and storage techniques. NiCad and NiMH batteries normally use a two-step charging process; rapid charge and trickle charge. The rapid charge cycle replenishes about 90 percent of battery capacity; this is when the charger green LED comes on. The charger then switches to trickle charge and charges the remaining 10 percent capacity in one to two and a half hours. Remember, just because the green light is lit, it doesn't necessarily mean the battery has a full charge.

Li-Ion batteries should only be charged in those chargers designed specifically for this type of battery. For best results, batteries should only be left in the charger two to six hours after the green LED comes on. Never leave the battery in the charger for weeks on end. If you do, the battery capacity will diminish and won't be there when you need it.

It is best if newly purchased batteries are placed into service as soon as they are received, after initial charging. If you can't, NiCad batteries can be stored up to 2 years, NiMH and Li-Ion batteries can be stored up to 18 months. All three battery types should be stored in a cool, dry location.

Most, if not all, battery vendors will date their batteries with the manufacture date. The age of your battery should be recorded and tracked. Battery life varies by brand, type and how the battery has been cared for. There are several vendors that sell battery conditioners/analyzers. Using these will prolong battery life and give you an idea of battery capacity/condition and when it needs to be replaced.

Proper safety procedures should always be in effect when using any type of battery. It is normal for a battery to become warm during the charging cycle; however, if a battery becomes hot, it should immediately be removed from service. Additionally, charging Li-Ion batteries in a nickel-based battery charger can result in a serious safety incident.

Check with local solid waste officials for recycling options and proper disposal. You can also call 1-800-8-BATTERY for locations, information and procedures for properly disposing of rechargeable batteries.

Lastly, remember that the old saying "you get what you pay for" applies with batteries, as well. Low initial cost may translate to shorter battery life and less charging capacity.

(Submitted by Mr. Richard Leber, ALMR Technical Advisor with excerpts taken from Harris's™ "Battery User's Guide" and "Motorola™ "Two Way Radio Battery Care.")

Motorola™ Emergency Button Update

Motorola™ announced in the second quarter of 2013 a new firmware update, which allows their APX and XTS/XTL subscriber units the capability for emergency revert between trunked and conventional systems.

This new feature expands the emergency revert capability of the radios to include: 1) reverting to a conventional channel for emergency operations when the Emergency Button is pressed, while on a trunked talkgroup; 2) reverting from a conventional channel to a trunked system talkgroup for emergency operations; or 3) reverting from one trunked system to another trunked system.

This can be accomplished on XTS and XTL radios through Firmware/Customer Programming Software (CPS) Version 19 and on APX radios through Firmware/CPS Version 9.

The ALMR Subscriber Emergency Button Activation Policy and Procedure 300-7 is now posted on the web site (www.alaskalandmobileradio.org). It is recommended agencies review the Policy and Procedure prior to programming the Emergency Button in their radios.

In all cases, if you have the Emergency Alarm go to a dispatch center/agency, other than your own, you must ensure you have executed a Memorandum of Agreement (MOA) between your agency and the dispatch center/agency monitoring your alarms.

The Operations Management Office (OMO) will facilitate the coordination and execution of any MOAs between the consenting dispatch center/agency to ensure all necessary documentation is maintained. This includes keeping a current list of subscriber units/users on file with the monitoring dispatch center so the individual having the emergency can be identified immediately and necessary response dispatched. Please contact the OMO for further information.

(Submitted by the Mr. Rich Leber, ALMR Technical Advisor, in coordination with Motorola™ Solutions regarding the new capabilities and firmware required.)

State Legislative Audit Concludes

A year-long audit of the Alaska Land Mobile Radio (ALMR) Communications System by the State of Alaska Legislative Budget and Audit Committee, Division of Legislative Audit, was recently concluded. The result was one finding and recommendation regarding user agencies failing to conduct annual inventories of their equipment operating on the ALMR System.

The results of that audit were briefed at both the Executive Council (EC) and the User Council (UC) December monthly meetings by the Operations Management Office (OMO).

The EC requested the OMO devise a method to ensure agencies perform their annual inspections, as required.

The Operations Manager, as the executive agent of the EC, will distribute individual letters to each agency operating on ALMR. Attached to the notification letter will be a form, which the agency will be required to sign, date and return it to the OMO confirming they have accounted for all their subscriber units. Distribution of the letters and forms will be completed by the end of January.

The UC and the EC will be advised of any agencies not in compliance. Agencies failing to respond to the letter would be subject to sanctions, as determined by the EC.

Agencies will still receive a list of their subscribers each October from the Asset Manager; discrepancies should be addressed immediately.

Agencies with questions or concerns should contact the OMO directly.

(Article submitted by Ms. Sherry Shafer, ALMR Documentation Specialist)

Help Desk In Anchorage Bowl: 334-2567

Toll Free within Alaska: 888-334-2567

Fax: 907-269-6797

Email: almr-helpdesk@inuitservices.com

Website: http://www.alaskalandmobileradio.org

2013 FACTOIDS

Total Voice Calls: 12,778,142 (cumulative)

Total Data Allocations: 3,915,848 (cumulative)

Agencies on ALMR: 119 (end of 2013)

Subscriber Units on ALMR: 18,988 (end of 2013)

Alaska Land Mobile Radio
Operations Management Office
5900 E. Tudor Road, Suite 121
Anchorage, AK 99507-1245