ALMR INSIDER

Volume 7, Issue 3 Jul 15, 2013

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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ALMR/AWARN 7.13 System Migration Update

In the April 2013 Insider, we published an article providing an overview of the Alaska Land Mobile Radio (ALMR) Communications System and the Anchorage Wide Area Radio Network (AWARN) System migration from the current software platform of 7.1.1 to the new 7.13 platform. That migration is underway at this time.

Beginning in June, Motorola™ personnel began pre-installing upgraded equipment at ALMR and AWARN repeater sites in both Zone 1 and Zone 2 and also upgrading Gold Elite dispatch consoles at many of the dispatch centers.

The pre-installation of various additional pieces of equipment, as well as conducting testing necessary for the migration will continue through the month of July.

The most critical phase of the migration is "cutover." This is when dispatch centers and subscribers will experience scheduled outages. This process will begin the week of August 5 and is expected to be completed by the end of that week.

As you know, connectivity from the ALMR System controllers to the various sites and dispatch centers is provided via microwave. The number of sites and dispatch centers connected to the controller on a particular microwave link varies from one to five. Therefore, when the "cutover" process begins anywhere from one to five sites will lose connectivity to the controller.

The site or sites will immediately default to "site trunking" mode. This means a subscriber affiliated with a particular site will still be able to communicate with other subscribers affiliated with that same site.

However, subscribers will not be able to contact their respective dispatch centers or other subscribers affiliated with another site. This is the same situation that occasionally occurs during unscheduled outages when connectivity between a site and the controller is lost.

Beginning early on the morning of August 6 Motorola™ personnel working in the ALMR North and South Zones and the AWARN Zone will slowly begin the "cutover" process by terminating microwave connectivity to a site or sites from a controller operating on the 7.1.1 platform. This will result in the site or sites defaulting to site trunking.

The Motorola™ personnel will then connect a new controller operating on the 7.13 software platform. Once this is complete, the site or sites will come back on line in wide area as the connectivity to the controller is reestablished.

This process will be repeated until all sites are reconnected with the new zone controllers operating on the 7.13 software platform.

Key personnel from the State of Alaska, the Municipality of Anchorage, the Department of Defense, and staff from the System Management Office and the Operations Management Office have been fully engaged in the planning and preparation for the 7.13 software migration, which has been underway for several months. It is fully anticipated that all will go as planned.

However, dispatch centers and agencies operating on ALMR and AWARN still need to develop and test their own contingency plans for communication during the planned outages. They should also be prepared to utilize their contingency plans for an undetermined amount of time should the "cutover" not go according to the current schedule.

Please contact the ALMR Help Desk if you need assistance in developing your contingency plans.
(Submitted by Mr. Del Smith, ALMR Operations Manager)

Narrowband Statewide Interoperability (OP) Zone

The Operations Management Office (OMO), while working with Enterprise Technology Services (ETS), has discovered some agencies still have incorrectly programmed radios.

Therefore, the following table, originally provided in April 2011, is once again being published to ensure agencies have the most current information regarding the Interoperability (OP) Zone programming.

NOTE: Channels 6 - 22A below are Marine channels and NOT to be used by LMR except under emergency conditions.

Line #	Name	Freq TX	PL TX	Freq RX	PL RX	Mode	Description
1	LE SX	155.2500	none	155.2500	CSQ	NBFM	Law Enforcement
2	EMS-S	159.2100	none	159.2100	CSQ	NBFM	Emergency Medical Service
3	SAR	155.1600	none	155.1600	CSQ	NBFM	Search & Rescue
4	CH6	156.3000	none	156.3000	CSQ	WBFM	Intership Safety
5	CH16	156.8000	none	156.8000	CSQ	WBFM	Calling
6	CH17	156.8500	none	156.8500	CSQ	WBFM	State Control
7	CH22A	157.1000	none	157.1000	CSQ	WBFM	Coast Guard Liaison
8	VCALL10	155.7525	156.7	155.7525	CSQ	NBFM	VHF Calling Channel
9	VTAC11	151.1375	156.7	151.1375	CSQ	NBFM	VHF Tactical 1
10	VTAC12	154.4525	156.7	154.4525	CSQ	NBFM	VHF Tactical 2
11	VTAC13	158.7375	156.7	158.7375	CSQ	NBFM	VHF Tactical 3
12	VTAC14	159.4725	156.7	159.4725	CSQ	NBFM	VHF Tactical 4
13	ASTT	-	-	-	-	ALMR	AST coordination
14	EMST	-	-	-	-	ALMR	EMS coordination
15	DECT	-	-	-	-	ALMR	DEC coordination
16	DNRT	-	-	-	-	ALMR	DNR coordination

Notes		
Narrow Band per FCC rules	NBFM	Narrow Band FM
Marine channels remain Wide Band	WBFM	Wide Band FM
ALMR uses P25 and trunking	ALMR	Trunking P25
P25 Modulation is not used for conventional interoperability	P25	Conventional P25 Digital
	CSQ	Carrier Squelch

(Channel lineup provided by Mr. John Lynn, SOA ETS)

What is Currently Happening with SATS?

The State of Alaska Telecommunications System (SATS) team, a division of ETS, is in full swing with summer projects. In addition to the annual preventive maintenance efforts at 55 SATS helicopter-only accessible sites, ETS has 35 projects defined for this year, many of which can only be done in the summer.

SATS biggest project, due for completion by the end of July, is the Parks Highway microwave upgrade. The network that carries the Alaska Land Mobile Radio (ALMR) System signals and transmissions along the Parks Highway was in need of an upgrade. New microwave radios and dish antennas are being deployed to 12 of our sites from Anchorage to Fairbanks along the Parks Highway.

In order to minimize the impact to the system, the SATS team has been upgrading one link at a time, while working hard to re-route signals to keep ALMR and the network up and running. All work and potential outages are coordinated through to the ALMR Help Desk. Another key project will be the addition of the Donnelly Dome microwave site along the Richardson Highway. The addition of the Donnelly Dome microwave site will fully complete a second, equal-capacity network path between Anchorage and Fairbanks.

Between the Parks Highway Upgrades and the Donnelly Dome site installation along the Richardson Highway, SATS will not only be able to provide a significant bandwidth increase between Anchorage and Fairbanks, but also provide increased resiliency, guaranteeing bandwidth and alternate paths for data and voice to keep flowing should a fault occur.

For ALMR and other agencies that rely on SATS services, this means a more reliable, robust communications network backbone.

(Submitted by Mr. Max McGrath, SOA ETS)

Tech Corner: Personal Radio Frequency (RF) Safety Monitors

Many technical personnel in the State of Alaska have occasion to be in close proximity to equipment emitting high levels of radio frequency (RF) energy.

There are two undisputed effects to human health that can occur with exposure to high levels of RF energy over time: 1) heating of the human body; and 2) electrostimulation (RF shocks and burns).

I, for one, know the effects of coming in contact with a 100 watt mobile radio antenna, while in the transmit mode. I still have a scar on my index finger to remind me of the incident.

RF radiation is almost exclusively an occupational problem. Therefore, it is rare for someone to be exposed to significant RF field levels outside of work.

There is one major exception. The proliferation of wireless antennas on rooftops has made public exposure, and exposure to workers outside the electronics industry, a concern for anyone that goes on a rooftop.

In the United States, there are Federal Communications Commission (FCC) and Occupational Safety and Health Administration (OSHA) RF exposure standards. The radio frequency exposure Maximum Permissible Exposure (MPE) limits are divided into two levels, one for "General Public" use and one for personnel trained to work in high-frequency radiation areas such as towers, rooftops, and equipment rooms/shelters, which is referred to as the "Occupational" level.

Personal RF safety monitors are an effective and economical means to monitor the strength of electromagnetic fields from common workplace RF sources from 100 KHz – 100 GHz. The personal RF monitor is an essential piece of safety equipment for complying with FCC and OSHA exposure standards. Some models can be mounted directly to an antenna or other RF emitter to ensure against inadvertent activation while in a "lock-out-tag-out" condition.

Different models of personal RF safety monitors offer a variety of audible and visual warnings when RF limits are exceeded and immediately alert anyone in the area to high RF fields that could present a health hazard. Some give an approximate value of RF strength to help determine how long it is safe to remain in the radiation field. Most monitors are extremely convenient to wear or carry, are only slightly larger than a cell phone and weigh from three to eight ounces.

Prices vary, so do your research to see which model would best fit your needs.

(Submitted by Mr. Rich Leber, ALMR Technical Advisor)

ALMR 7.13 Update Implements Latest P25 Standards

The Alaska Land Mobile Radio (ALMR) System software update currently in progress implements the latest iteration of the evolving and expanding P25 standards established by the Telecommunications Industry Associations (TIA). This latest version of Motorola™ software will provide greater flexibility to seamlessly integrate different networks and dispatch consoles, from the same or different vendors.

The recently released P25 standards include two new interoperability interfaces allowing far more choice and flexibility.

The first of these is called Inter Sub-System Interface (ISSI), also known as ISSI 8000. This feature provides a standard interface to the network core, through which connections to other networks can be made. Any vendor system that supports this standard interface can be connected to this port, through mutual agreement of the network operators, to allow sharing of capacity/coverage to expand networks/interoperate in times of emergency.

Separate networks that are interconnected still retain full autonomy. Linked systems can be in the same or different RF bands, and subscribers can be configured to automatically roam from one network to the other to reduce required operator training. Push-to-talk IDs are passed from one system to the other to identify the calling party. P25 standard system access security by radio authentication is still supported.

ISSI 8000 supports group call, emergency call/alarm, clear/encrypted audio, and unit/group registration. A total of 24 systems can be connected; a maximum of 100 simultaneous calls is supported. The interface will support Phase 1 (FDMA) and Phase 2 (TDMA) calls.

The second interoperability feature is Console Sub-System Interface (CSSI), or CSSI 8000. This addition provides a standardized interface into a network core for dispatch consoles. The advantage for agencies is if they already have dispatch consoles that meet this P25 interface standard there is no need to replace the consoles when they install a new network. The interface allows customers a wider choice of consoles, depending on their specific requirements.

CSSI 8000 supports group call, individual call with call alert (to a CSSI interface), and emergency call/alarm, clear/encrypted audio and push-to-talk ID. Both Phase 1 (FDMA) and Phase 2 (TDMA) calls are supported. The features available to the customer will be the common features between the list above and those supported by the console.
(Excerpts taken from Motorola quarterly SMARTCOM for Oct/Nov/Dec 2012)

ALMR Training Available During SOA FY14

In the past twelve months, Radio and Emergency Communications Planning Training has been provided to over 400 individuals from Enterprise Technology Services, Amateur Radio Emergency Services, Forestry, Fairbanks Airport Fire and Police, Pioneer Homes, City of Valdez, Department of Corrections, Kenai Peninsula, Department of Transportation, Division of Homeland Security and Emergency Management, Aleutian-Pribolof Island Association, Palmer Police, Municipality of Anchorage, MatSu Borough, Alaska State Troopers, Copper River Basin, Kachemak Emergency Services, City of Seward, Bear Creek Fire Service Area, and Providence Seward Medical Center.

Training will be offered once again in State of Alaska FY2014 (July 1, 2013 to June 30, 2014) and is still fully funded by the State. It will be a continuation of the training provided over the last two years and is designed to address the training needs of Alaska Land Mobile Radio (ALMR) agencies. As before, scheduling of this training will take into account agency shifts, days off and availability of personnel.

Classes offered include Radio Operations, Emergency Communications Planning, State and Federal Communications Issues and Introduction to MotoBridge®. Each of these classes lasts about 2-3 hours and will be conducted at your location at no charge to you. All agencies need to provide is a training space and the students. Customized workshops, combining one or more courses, over several days, can be accommodated.

ALMR member agencies will be contacted directly by the training team to define their training needs and to schedule classes. For additional information, contact Mr. Del Smith, 907-229-2114, or Ms. Sherry Shafer, 907-269-8408.

(Submitted by Mr. Joe Quickel, ALMR Training Coordinator)

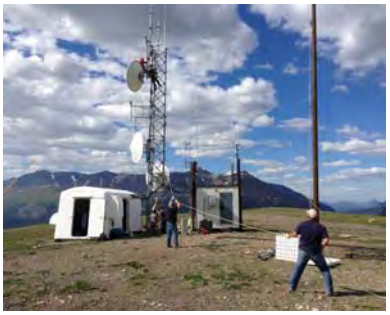
Help Desk In Anchorage Bowl: 334-2567

Toll Free within Alaska: 888-334-2567

Fax: 907-269-6797

Email: almr-helpdesk@inuitservices.com

Website: http://www.alaskalandmobileradio.org



The Enterprise Technology Services (ETS) team hanging a new microwave dish at Reindeer Hills. (June 2013)

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