



IN MAGNOLIA, TEXAS, ASTRO® 25 NETWORK AND RADIOS GET A BAPTISM BY WILDFIRE



ASTRO 25 NETWORK AND RADIOS PROVED THEIR RUGGEDNESS, RELIABILITY, INTEROPERABILITY AND EASE OF USE DURING DEVASTATING WILDFIRES IN SOUTHEASTERN TEXAS.

SITUATION

Just as the Magnolia Volunteer Fire Department was enhancing its ASTRO P25 solution with new dual-band radios, the Riley Road wildfire broke out.

The Magnolia, Texas Volunteer Fire Department (MVFD) had just received a shipment of Motorola APX 7000XE dual-band portable radios as part of an upgrade to an ASTRO 25 communications system. Radio deployment and training had just begun, with about 20% of the units in the hands of firefighters, when a major wildfire broke out and interrupted the deployment. Firefighters from the region and from all around the country poured in to help contain and control the fast-growing blaze in the Riley Road area of Montgomery County. The MVFD quickly deployed the remaining radios to the Incident Command Center to provide the reliable, interoperable communications so critical in a multi-agency response incident.

SOLUTION

Interoperability with the ASTRO P25-based regional TxWARN network helped ensure clear, multi-jurisdictional communications under the most chaotic conditions.

The remaining APX 7000XE radios formed the core of a radio cache used by a wide variety of firefighters and other

public safety personnel to enable enhanced interoperable communications. Virtually none of these users had training or experience with the units, yet the radios' inherently intuitive controls made them exceptionally easy to operate. All told, personnel from close to 100 different organizations used the units' advanced dual-band features with little difficulty. They were able to switch from VHF to 800 MHz talk groups instantly and effortlessly over the regional TxWARN network.

RESULTS

In constant use over one grueling week, the ASTRO P25 solution provided rugged, reliable performance that played a major role in containing the fire.

The Riley Road wildfire was controlled after seven days of exhausting effort. Although the fire destroyed over 20,000 acres and 76 houses, firefighters were able to save 10,000 homes and countless acres, without the loss of a single human life. By performing reliably while being in almost constant use for over a week, the APX 7000XE radios helped the close to 500 professionals who fought the blaze communicate with exceptional ease and clarity under extreme and dangerous conditions. Paying the APX 7000XE radio the ultimate compliment, Rusty Griffith, Magnolia Fire Department's assistant chief of planning, says simply, "This is a firefighter's radio."

CUSTOMER PROFILE

Organization
Magnolia, Texas Volunteer Fire Department

Industry
Fire Service
Public Safety

Solution
Motorola ASTRO 25 solution with APX 7000XE dual-band portable radios

Features

- Interoperable communications across different systems and devices
- Dual-band capability for VHF/800MHz frequency bands
- Ruggedized reliability
- Intuitive operation

Benefits

- Seamless communications across more than 100 organizations
- Instant switching from talk groups on different frequencies
- Reliable, continuous operation 24 hours/day over seven days
- Easy to use with little or no training



At a ceremony held to thank everyone who worked to control the Riley Road wildfire in Magnolia, Texas, Fire Chief Gary Vincent of the Magnolia Volunteer Fire Department put a firefighter's perspective on the exhaustive seven-day effort.

"While many of (our residents) saw the smoke, the firefighters had a different perspective, and a 100-foot flame coming right at you is pretty frightening."

WILDFIRES: A GROWING THREAT

One of a series of devastating wildfires throughout the United States, the Riley Road fire in southeastern Texas was indicative of an increasing threat. In a communiqué, the International Association of Fire Chiefs (IAFC) noted that mild winters, early springs and a mix of dry vegetation, high winds and drought conditions are contributing to an especially dangerous wildfire forecast. "The immediate concern of the IAFC is the growing number of communities facing major outdoor fire threats, who have not seen this volume or intensity of fire in nature before," said Chief Al Gillespie, IAFC immediate past president and chairman of the board.

The Riley Road fire in Montgomery County is an example both of the potential devastation and of the combination of firefighter courage and reliable communications that is essential for controlling these large-scale events.

FAST-GROWING COMMUNITY

Magnolia, Texas, located 35 miles north of Houston, is one of the fastest-growing areas in the state of Texas. The greater Magnolia area has a residential population of more than 70,000 in an urban-rural mix that combines residential neighborhoods and rural areas of far-reaching expanses of dense pine forests. The 130-member strong Magnolia Volunteer Fire Department (MVFD) serves a territory of approximately 165 square miles and responds to more than 4,000 incidents a year. The MVFD is also one of the first fire departments in

Montgomery County to be organized along the National Incident Management Systems (NIMS) guidelines, which positioned it well for receiving support from outside agencies during the Riley Road fire.

COMMUNICATIONS UPGRADES

The MVFD has been a leader in upgrading its communications capabilities and equipment. "From a communications standpoint," says Rusty Griffith, assistant chief for planning, "to reach out to those rural areas is difficult and dependent on having wireless communications equipment capable of navigating difficult terrain and penetrating dense forested areas." Prior to 2010, the department had an antiquated VHF radio communications system that was plagued with small capacity, few towers, limited coverage and virtually no backup. The department addressed these issues in June 2010 with the introduction of a new VHF radio system that provided more stability, enhanced coverage and greater capacity.

"While the new VHF system brought considerable improvements, it still left a number of voids in terms of interoperability and we still had some coverage issues," Griffith noted. So when the opportunity arose, the department opted to supplement its VHF system by joining the regional Texas Wide Area Radio Network (TxWARN) system, a regional 700/800 MHz public safety network as large and powerful as many statewide systems.

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—Chief Al Gillespie,
Immediate Past
President,
International
Association of Fire
Chiefs



THE LAST PIECE: DUAL-BAND RADIOS

“One of the biggest issues we had was the lack of quality in our radios,” says Griffith. There was a wide disparity in radio quality across the county fire departments; radios were old and outdated, some were even incapable of being narrow-banded. Many were also merely consumer-grade, which often led to reliability and durability issues. “Then we and the 15 other fire departments in the county started working on getting funding for new portable radios,” explains Griffith.

With the help of Montgomery County, MVFD was able to obtain over \$700,000 in grant money to purchase new dual-band mobile radios. At first, MVFD planned to purchase 800 MHz-only radios, but then Motorola introduced the APX 7000XE line of dual-band portable radios. “When that radio line was introduced,” says Griffith, “we knew, with the VHF system we had in place and the 800 MHz system we were joining, that we had the final step in achieving our goals of having quality infrastructure and radios.”

FIREFIGHTER-FRIENDLY FEATURES

In addition to its dual-band capabilities, the APX 7000XE radio offers the MVFD a variety of features designed for intuitive operation even at the most stressful fire scenes. “You’ve got to have equipment that’s easy to operate by

the guys in the field,” says Griffith. “For example, the radio’s knob size and placement . . . being able to switch from a VHF repeated channel to a VHF simplex channel to an 800 MHz talk group with just the turn of a knob is amazing.” Even the speaker volume is designed for a fire scene. “It has the volume to be heard when you put it in your coat pocket.” adds Griffith. “This is a firefighter’s radio.”

The new operational features make both emergency and day-to-day communications faster and easier. “Situations occur daily when we need to talk between the systems—say, to the sheriff’s office or another county agency,” notes Griffith. “Now we don’t have to carry two radios anymore; our new dual-band units let us switch between systems twisting a single knob on a single radio.”

TRAINING BY WILDFIRE

The MVFD ordered 100 APX 7000XE radios and accepted shipment in mid-September. Training and installation were just beginning, with only about 20 of the radios deployed, when disaster struck. “We have six stations,” explains Griffith. “On Friday I was able to install and give hands-on training to individuals at one station. But then the Riley Road fire broke out on Monday.” That put an abrupt halt to hands-on training.

REGIONAL AND NATIONAL RESPONSE

“On the first day of the wildfire,” recalls Griffith, “we realized that this fire was going to be beyond our capability, and this would be at least a region-wide undertaking.” Response from regional and national resources was immediate. In addition to help from its mutual aid partners from Houston, Galveston, Austin and other areas, the MVFD had the assistance of dozens of other organizations from the Montgomery County Sheriff’s Office to the Texas Department of Public Safety to the U.S. Forest Service to the California Incident Management Team to the Alaska Foresters and many, many more.

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— Rusty Griffith,
Assistant Chief of
Planning,
Magnolia Volunteer
Fire Department



INTEROPERABILITY FUNDING FROM THE ASSISTANCE TO FIREFIGHTERS GRANT ACT

In 2009, the Fire Departments in Montgomery County, including the Magnolia Volunteer Fire Department, joined two Emergency Service Districts to apply for grant money to help provide regional interoperability. The grant was awarded under the Assistance to Firefighters Grant Act (AFG). Administered by the U.S. Department of Homeland Security’s Federal Emergency Management Agency (FEMA) in cooperation with the U.S. Fire Administration (USFA), the AFG was created to meet the firefighting and emergency response needs of fire departments and non-affiliated emergency medical service organizations.



TALKING TO EACH OTHER

This influx of assistance made it essential that hundreds of firefighters have the ability to talk with one another in real time. “The Riley Road fire really opened everyone’s eyes to the importance of interoperability,” says Peggy Frankhouser, captain of support services, Montgomery County Sheriff’s Department. “We could not have been as effective without interoperability between various users on the system.” The combination of the MVFD’s VHF system, the TxWARN network and the dual-band Motorola APX 7000XE portable radios delivered crucial interoperability under extremely challenging conditions.

ALL CHARGED UP AND READY TO GO

When the fire broke out, Griffith packed up the remaining Motorola radios—all of them charged and waiting at the Central Fire Station—and took them to the Command Center. “We brought them all to the Command Post,” says Griffith, “and created a cache of radios that were issued to our mutual aid partners.”

Over the next week the radios were in constant use by hundreds of different firefighting professionals. Most of

the firefighters at the fire had to literally train themselves on the radios. “We had people who had to learn just by us saying, ‘Here’s your radio,’” says Griffith. “For those people to be able to pick the radio up out of a charger and be able to operate it, that was huge. I think that speaks highly about the radio itself.”

CRITICAL INTEROPERABILITY

With so many different departments and professionals fighting the fire, interoperable communications were crucial to event coordination and resident and first responder safety. “The radios provided the interoperability throughout the event,” says Griffith. “We used several 800 MHz talk groups and several VHF frequencies during the incident.” At the peak of the effort, approximately 150 APX 7000XE radios were in use at one time; the MVFD’s hundred radios and fifty more from Montgomery County.

RUGGEDNESS AND RELIABILITY

The APX 7000XE radios also proved their toughness. “They were in use 24/7,” recalls Griffith. “We brought in extra batteries and firefighters would just constantly change the batteries out. The radios themselves stayed in the field. Some of them were on nonstop for seven days. We would not have been able to do that with our previous equipment.” The radios were as rugged as they were reliable. “The other huge part of it was their durability,” continues Griffith. “We had one particular unit that received pretty substantial burns due to the fire and yet it continued to operate throughout.”

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BURNED AND KEPT WORKING



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— Peggy Frankhouser,
Captain, Support Services
Montgomery County Sheriff’s Department



AFTER THE FIRE

The Riley Road wildfire was finally brought under control a week after it began, and the Magnolia system—VHF and 800 MHz networks and the Motorola end user radios—received high marks from the responding mutual aid partners. “When FEMA and CalFire came to the fire scene, they were impressed by our system,” says Captain Frankhouser. “They were also impressed by our response; the fast, orderly evacuation of area residents was crucial in saving lives and property.”

“Most of the time with an incident of this size, responding mutual aid agencies have to truck in additional equipment to handle communications,” says Griffith. “In this instance, our partners could not believe what we already had in place. Communications throughout the incident would definitely not have been the same without the APX 7000XE radios.”

TxWARN REGIONAL SYSTEM FOCUSES ON INTEROPERABILITY

The Texas Wide Area Radio Network (TxWARN) is a regional P25 network serving more than 260 public safety agencies in the Houston/Galveston area. Built on a Motorola 700/800 MHz network foundation, the system enables first responders in different jurisdictions to talk to one another, whether they are using analog, digital or P25 radios.

For more about ASTRO 25 and APX 7000XE Radios featured in this Case Study visit www.motorolasolutions.com/apx

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