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MidAmerica Tower Service VPP

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Backhauling to
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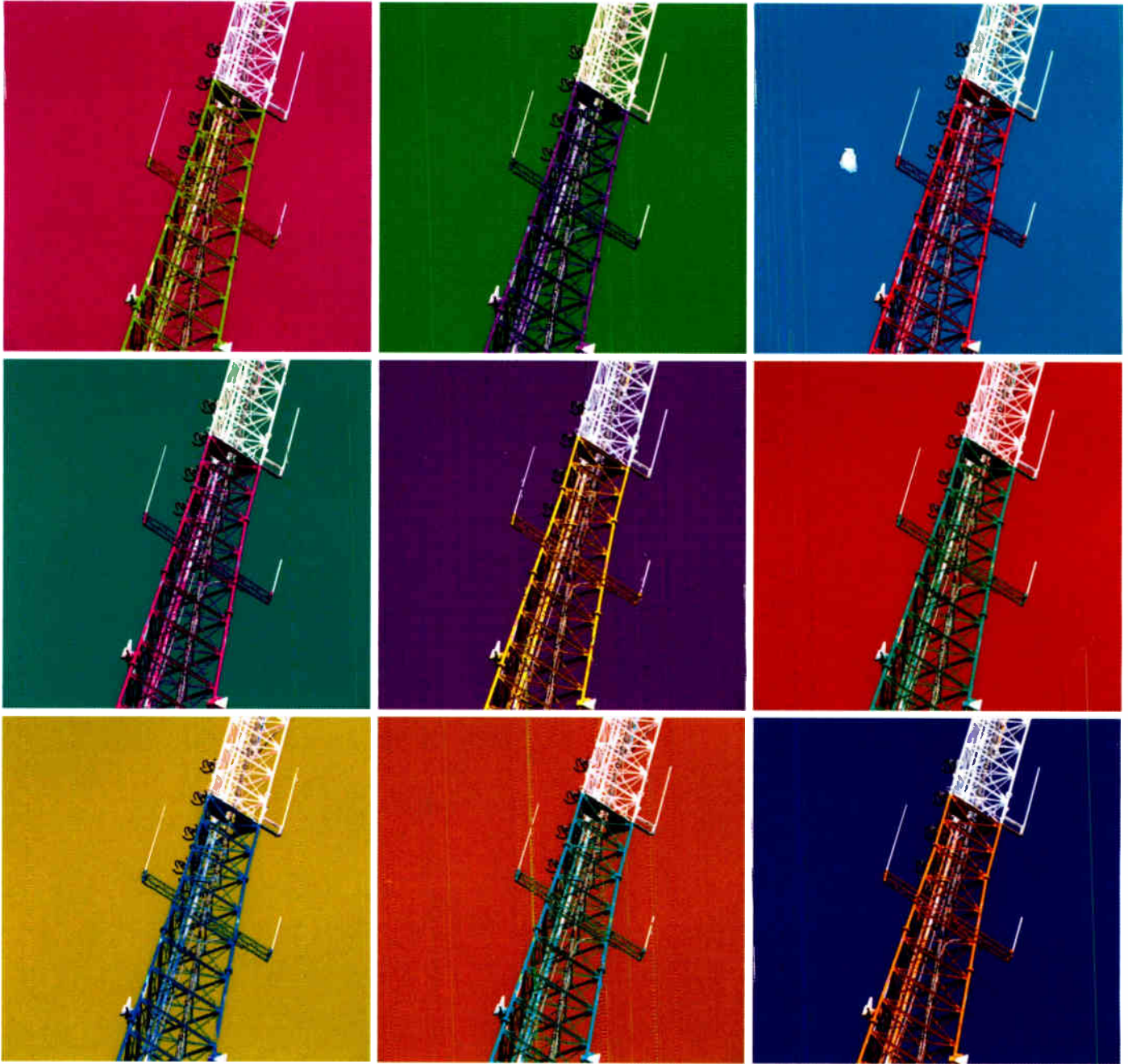
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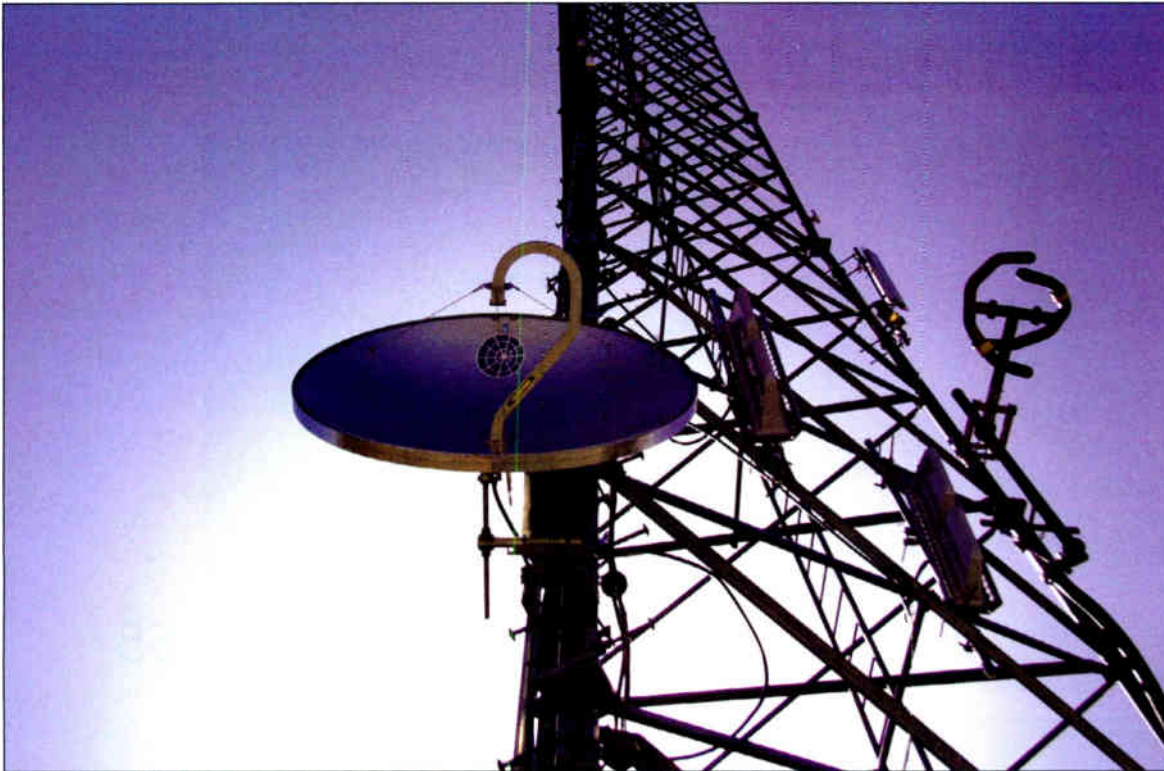
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Built in 1968 by Western Union Telegraph Company, the evolution of fiber optics and the loss of a DOD contract ultimately forced Lahontan Peak to be closed. Abandoned for years, the site was purchased by Richard and Jeanie Giebitz in 2002 from American Tower. Today, the site boasts contracts with a half-dozen companies and future leases with four others.

Photo courtesy of Lahontan Peak Tower, LLC

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Radios and Towers

I'm on the plane heading back from the International Wireless Communications Expo convention in Vegas. The IWCE show primarily focuses on land mobile radios, which until recently were two-way analog push-to-talk. Lately the land mobile radio has become more synonymous with TIA Project 25 radios.



IWCE is associated with Mobile Radio Technology magazine. AGL is fortunate to have several staff members who spent many years working for MRT, including Don Bishop, Mercy Contreras, Phil Cook and Scott Dolash. Why would I dare to mention a "competing" magazine? In the publishing biz, that's hardly ever done. The fact is, I don't really view many other magazines as "competition."

Instead, I believe several other publications are *complementary* to AGL. We have established AGL as *themagazine* for the tower siting industry – the folks who build and operate towers. Not necessarily the folks who have stuff to *hang* on towers. Thus, typical

The on-line newsletter is going to be a great place for us to quickly point you to other interesting industry resources

readers of an MRT or MissionCritical Communications are the folks who have licenses and need to construct and operate a network. They are *consumers* of tower space – and the AGL reader's *customers*. This includes all of the Public Safety, Land Mobile, Cellular and PCS, the new breed of

by Rich Biby, Publisher
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satellite/terrestrial hybrid companies such as Sirius Satellite Radio, XM Satellite Radio, TerreStar Networks and Mobile Satellite Ventures, and the still-waiting-to-deploy Advanced Wireless Services licensees. To say nothing of the unlicensed broadband carriers, and the pending 700 MHz companies and emerging backhaul needs. *Wow*. What a lot of activity. Meanwhile, AGL focuses on towers, sometimes covering some RF issues that affect the operations of towers, such as interference, antenna performance, transmission lines, etc.

Reflecting AGL's declared "Year of Education," which is running the risk of becoming two years at this point with the number of topics we have to cover, we will see changes in customer needs and the wireless infrastructure industry will adjust a little to accommodate those new and slightly changing needs. Oh, did I mention the backup power requirement? Change is *here*.

So we are going to actually reach out to some other publications and try to work with them, instead of against. If we find a good article on an emerging technology, we'll either direct you to it, or perhaps re-print it in AGL. The on-line newsletter is going to also be a great place for us to quickly point you to other interesting industry resources, so consider signing up if you are not already. We'll only clutter your email twice a month, and never share your contact info, rest assured.

An old friend and co-worker now works at a great trade association, UTC (Utilities Telecom Council). I've just learned of UTC's affiliated organization, Utilisite Council, which helps utility company members of UTC leverage utility poles as antenna siting options by helping utilities create uniform approvals and systems for timely contracting. This is going to be a good group to watch: www.utilisite.utc.readyportal.net.



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Recommit to Safety

In any workplace, employers and employees agree on the need for safety.

The U.S. Occupational Safety and Health Administration (OSHA) and the National Association of Tower Erectors (NATE) appear united in the belief that productivity, efficiency, cost savings and worker morale flow from a superior safety program supported with equipment, training and supervision.



“You are in a dangerous industry,” the head of OSHA, Assistant Secretary of Labor for Occupational Safety and Health Edwin G. Foulke Jr., told an audience at the 2008 NATE convention.

“[If your employees] make a mistake and they are not safe, there is a strong possibility they could be killed.” And 18 were killed in 2006, Foulke noted, adding that tower erection workers and climbers rank No. 1 as the most dangerous job by fatality rate.

“It is the failure to tie off or to have safe points to tie off,” Foulke explained, citing the need not only for tower climbers to attach their safety equipment to towers 100 percent of the time, but for the towers themselves to be constructed in a way that provides adequate attachment points.

A recurrent complaint is that tower construction and maintenance companies that do not use proper safety equipment, do not train their workers in safe procedures and do not provide supervision are able to underbid companies that do. This led to extensive efforts to encourage all construction and maintenance companies to institute safety programs to, as they say, “level the playing field.”

When some wireless carriers, tower

owners and general contractors do not pay as much attention to the safety of workers employed by tower construction and maintenance companies, they are in the peculiar situation of facilitating, if not encouraging, unsafe practices. Relying strictly or mostly on lowest-bid pricing to choose their tower construction and maintenance services, they may be unwittingly or, worse yet, knowingly exposing workers to avoidable risks.

Whether to avoid responsibility and possible liability for worker safety or to control costs or both, some companies that own and build towers use contractors instead of their own employees. A principle reason for using contractors is to obtain specialized services on an as-needed basis and avoid ongoing overhead, but some also may view the practice as a way to shift responsibility for safety to someone else.

In an effort to overcome this problem, NATE has launched an initiative to encourage CEOs and managers at broadcast companies, wireless carriers, tower owners and general contractors

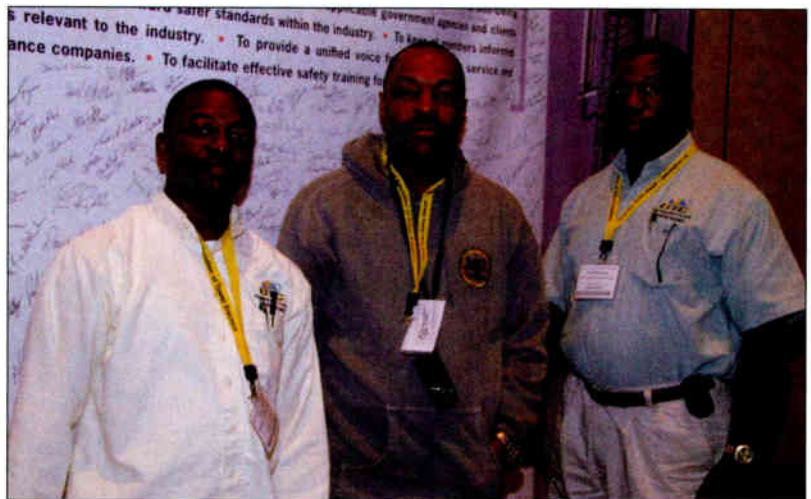
to adhere to the uniform standards of safety that NATE has formulated. NATE wants everyone to commit to making safety the only accepted method of conducting business in the tower industry.

A fully implemented and supervised safety program allows a tower construction and maintenance company to reduce its overhead. OSHA chief Foulke said the federal agency has a “Safety Pays” tool on its website that shows companies how much they must generate in sales volume to make up for the cost of worker injury. The URL is <http://osha.gov/dcspl/products/topics/businesscase/index.html>, or you can navigate to the page from the OSHA home page www.osha.gov. Click on “m” on the site index at the top of the page. Click on “Making the Business Case for Safety and Health.” Scroll down to the “Safety Pays” eTool.

“We can help you to be successful. There’s nothing wrong with being safe *and* successful,” Foulke said.

We couldn’t have said it better. The time is now to recommit to safety. **agl**

Picture of the Month:



Tower hands, foremen, supervisors, managers, CEOs and company owners signed a commitment to safety called the ‘signature wall’ at the National Association of Tower Erectors (NATE) conference in Orlando, FL, conducted Feb. 11–14, 2008. Shown from the left, after signing the wall, are Trevor Stubbs, Brian Brown and Olrick Sweeting of Bahamas Telecommunications Company of the Commonwealth of The Bahamas.

by Don Bishop, Exec. Editor
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Forecasting weather ... ah ... site development

by Larry Louk

When I was asked to write this article, I had to chuckle. I thought back to July 1997 when three partners and I formed our company to provide site acquisition, engineering and construction management services for wireless infrastructure. We thought it would last three years—four, tops. I mean, just how many towers could these wireless companies build, right? Certainly the market would be saturated in a few short years.

Such is our ability to forecast. Now, 10 years later, I was asked to write

what the future holds for our business over the next year or two. In my 12-plus years in the wireless site development business, I have found one truism: Forecasting what is going to happen in our business more than six months out is like forecasting the weather seven days out. Have you ever relied on a 7-day weather forecast? Gather all the information and use all of the models you want, but more times than not, the forecast is wrong.

Budget decisions

Wireless companies' budget decisions (can you say "cuts"?) made at the upper levels of management are at times

conveyed with only a moment's notice to their local site development managers. How many times have those in our line of work received that "stop all work now" email out of the blue, with no warning? What seems to have been a healthy project that would keep you busy for a year or so goes up in a puff of smoke. And have you ever received a Request for Proposal that states that work is expected to start no sooner than six months out? At most you receive one month's time to scramble and shuffle your personnel to make it happen. Coupled with the fact that, at least in our end of the business, projects normally last no longer than eight months



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at the outside, well, you get my drift that forecasting is no easy task.

With those daunting thoughts in mind, let me get into the task at hand: Forecasting is really *strategizing*. In what areas do we see our work coming from in the next two years? Where should we focus our business development resources to lock down the future work? Which clients are doing what kind of work? And, most importantly, what type of work is going to be the most profitable? To discuss specific carriers and their build plans would be nonsensical, as not only would it give our competitors some information they may not be privy to and could act upon (although it seems there are no longer any secrets in this industry), but it would probably violate some confidentiality agreements we have with our clients. So, I will "strategize" in general terms.

New site builds — Expansion of coverage into rural areas will lead the "new build" site development by the

Recommendations:

Wireless carriers

Hire enough competent personnel to process collocation applications promptly.

Local governments

Assess penalties for failure to comply with collocation guidelines and timelines.

PCIA and state wireless associations

Adopt guidelines and timelines for processing collocation applications.

Public tower companies

Publish collocation statistics.



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traditional wireless carriers. Whether the expansion is directly by the incumbent wireless carriers or by their “partnering” with rural carriers or new companies formed for that purpose, the last push to reach those remaining “pops”—to achieve the 100 percent penetration rate—with high-quality coverage and service should be the focus. As to non-traditional wireless service providers, WiMAX is already here, but it takes a lot of capital to build a wireless network from scratch. As the business models and performance continue to justify the investment, there will be a significant increase in new market builds. However, there will be relatively few “new market” builds by second tier wireless companies. Quan-

12 above ground level

tity of services (the “bells and whistles”) offered and quality of service will continue to be a focus as the wireless carriers vie for each other’s customers, leading to additional capacity and infill sites at about the same rate we’ve seen over the past couple of years.

Site/equipment modifications and overlays — Most carriers have completed or are in the process of completing their 4G/UMTS overlay work, and it should be finished within the next twelve months. This area of work has probably peaked, but it will continue to keep those companies busy that already have a piece of it.

Tower analysis — Our tower analysis division has been steadily busy, but as more and more jurisdictions (and

wireless companies) adopt the new Rev. G standard, the design of tower modifications will become a large part of its focus. Additionally, tower replacements will become the norm, not the exception. Leasing, zoning, permitting, design, and construction management will all be in play. Many towers will be “over stressed” as they currently stand, and where the industry goes with that issue will be interesting. Think of this scenario: Wireless Company “A” owns a tower. There are two collocators on the tower, B and C. Company A wants to add or replace some antennas *on its own tower*. The tower is already “over stressed” under the new G standard. What to do? What can it do? Have you been seeing any “weird” provisions in



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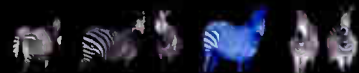


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been seeing any “weird” provisions in collocation leases lately? Hopefully, B and C read the fine print.

Collocation

Speaking of collocation, there is one sure thing that will make everyone’s life easier in the wireless site development industry, and that is for the wireless companies to take leasing

of their towers for collocation seriously. Back in the late ’90s, it would take two weeks to complete a collocation lease when things were done at the local market level. I can still recall hand-carrying leases between the local market offices for signature—ah, the good old days. Nowadays, there is no reason it should take longer than two months—but it is taking as long as to

six to eight months, even more than a year in some cases. This is breeding a lot of distrust and in-fighting among the wireless carriers—“You’re sitting on my collocation application, so I’m going to sit on yours.” And since our company doesn’t get paid until the lease is signed, not only is our client frustrated, but we are, too.

Here are some numbers that may open their eyes. Let’s say a wireless company owns some 6,000 towers, and they lease space on 10 percent of their towers every year. That’s 600 collocation leases a year. At an average lease rate of \$1,600 per month, that generates more than \$11.5 million per year in revenue. Except for some nominal front-end expenses in processing the collocation application—most of which are passed through to the applicant—this is really nothing but net income that can be put right back into site development. But that doesn’t tell the whole story. In today’s market, towers are now being bought and sold for more than 16 times the annual net operating income. Adding a collocator to a tower does not increase net operating expenses at a site. Thus, by adding 600 collocators in one year, a wireless carrier adds almost \$185 million in value to its tower portfolio.

To the wireless companies: This is a really profitable business, not a step-child. Hire enough competent personnel to handle the volume in a timely manner. With the amount of revenue generated, you can surely pay for it and make a lot of money at the same time. And if the reason you’re not processing these applications in a timely manner is for competitive coverage purposes, let your marketing and sales teams compete; there is no reason to compete in the site development arena. Believe me, cooperating with your local competitors in site development will only get your sites on the air faster in the long run. Cooperating includes the timely processing of your competitor’s collocation application. Efficiency is a key factor to remain competitive, and it will have a positive impact on customer (competitor) satisfaction, which is a key objective for all in this business.



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Expansion of coverage into rural areas will lead the 'new build' site development by the traditional wireless carriers

PCIA and the state wireless associations should get together with representatives of the wireless com-

panies and adopt a set of guidelines *and* timelines for the processing of collocation applications. Since local governments normally mandate during the permitting and zoning process that the applicant for a new tower allow for collocation on its proposed tower, as an additional condition of the zoning permit the lo-

cal governments should adopt and mandate these guidelines and timelines for the processing of collocation applications by the tower owner. Institute a series of fines or penalties if they don't comply. Taking accountability for such guidelines can only benefit those in this industry.

Publishing statistics

Statistics should be kept and publicized. Shareholders should be informed of the amount of value gained by a company that encourages collocation on its towers, or the amount of value lost by the failure of a company that discourages collocation due to the untimely processing of collocation applications. Unfortunately, I've witnessed a number of occasions where a wireless carrier has "walked away" from a collocation due to the lack of cooperation of the tower owner in the collocation process. Losing shareholder value due to inefficiencies in operations that can easily be fixed is not a way to run a publicly traded company.

The wireless industry is continually evolving and has yet to find its true identity. There are so many different ideas out there that 10 years from now (as was the case ten years ago) we probably won't recognize it. But implementing these different ideas will mean continual work for us in infrastructure development, whether in new site builds or site modifications. As jurisdictions have tightened up their zoning ordinances and collocation is now the norm rather than the exception, wireless carriers are going to have to show more cooperation with one another in the development arena if they want to get their new products to market in a timely manner. Maybe it would be a good idea for the local site development managers to institute a monthly "take your competitor to lunch day." **agl**

Larry Louk is vice president of Selective Site Consultants, an 80-employee company with headquarters in Overland Park, KS, (Kansas City area) and offices in St. Louis; Minneapolis; Omaha, NE; Oklahoma City and Houston.



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Safety on Construction Sites Prevents Accidents

by David Saul, AAI

Working on a construction site is considered to be one of the most dangerous occupations in the country. Each year, hundreds of thousands of construction workers are injured and even killed in construction site related accidents.



When it comes to construction injuries, the construction company carries the respon-

sibility of inspecting each site with competent safety engineers and maintaining a safety program for all employees. Owners, insurance companies, architects, and equipment manufacturers can be held liable when these safety measures are not implemented or fail to protect construction workers.

Manufacturers of various equipment and products used on the site can be found liable under third party negligence. Contracts may ensure that liability for injuries extends to subcontractors and contractors.

Workers' compensation provides benefits that include lost wages and

compensation for disabilities for injuries occurring on the job or even diseases caused by working conditions. Unfortunately, this alone may not be enough compensation.

Common accidents and injuries that occur on construction sites are:

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protect workers are not implemented, serious injuries can result from moving machine parts. Any kind of machinery, such as nail guns, mechanical power presses and forklifts, can cause preventable injuries.

Compressed gases hazards — The use of compressed gases in construction projects presents the possibility of

threats of injury on construction sites. Safety measures must be taken to protect these basic components of all machines located on the construction site.

Welding, cutting and brazing accidents — Employers are required to determine all potential dangers by providing protective equipment and minimizing all exposures to hazards. These hazardous pose dangerous health and safety risks to employees.

Construction site falls — Statistics confirm that more than 300 construction work-

ers will be killed on the job site this year due to falls. Common causes of these falls are unstable worksites, misuse of equipment, or lack of adequate safety equipment. Taking proper precautions can prevent many of the deaths and injuries associated with construction site falls.

Scaffolding accidents — Many of the injuries that occur annually are associated with work being done using scaffolds. Most accidents are attributed to negligent construction and maintenance of the scaffolds.

Cleanliness

Keep your workspace clean, for safety's sake.

Thorough vacuuming, dusting and disinfecting may be part of your routine at home. Housekeeping chores must also be a staple in your daily work life as well. By keeping workspaces clean, neat and tidy, you are helping to maintain your safety and the safety of others on the job.

Employees often fail to recognize safety hazards that are in front of them. The worst part is that most of these hazards are preventable. In fact, there are hundreds of reported on-the-job deaths caused by slips and falls each year, and

When safeguards meant to protect workers are not implemented, serious injuries can result from moving machine parts

mechanical as well as chemical dangers. Thousands of workers each year are injured due to failure to follow safe handling procedures.

Mechanical hazards — Several moving parts of many machines, such as the point of operation and the power transmission apparatus, pose

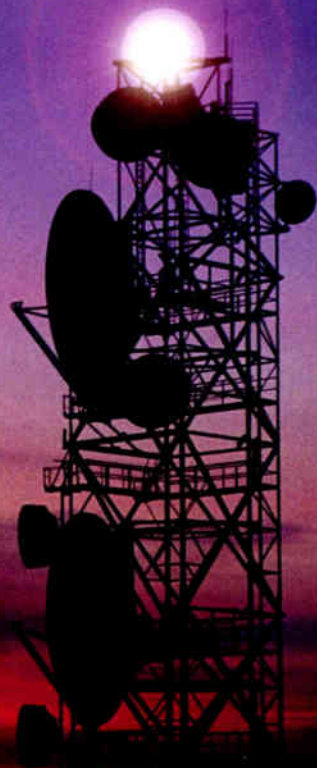
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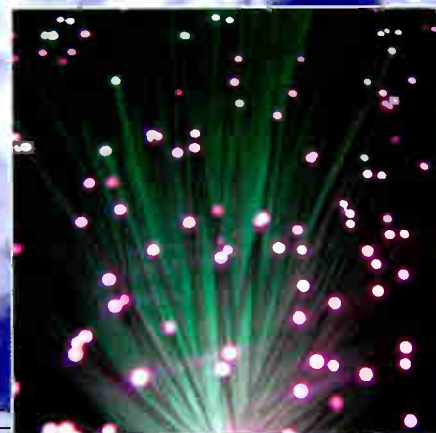
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poor housekeeping practices contributed to the cause of those accidents. Tripping and falling often result when employees leave loose materials or tools in aisles, when floors are wet and when stairways are cluttered. However, there are many ways to eliminate these hazards and reduce the risk of injury on the job and prevent Workers' Compensation claims.

There are three aspects of cleanliness: getting the workplace clean, maintaining its appearance, and using preventive measures to keep it clean.

When cleaning the workplace, take the time to plan what needs to be cleaned, what it will be cleaned with, when it will be cleaned, and who will do the cleaning.

Contracts may ensure that liability for injuries extends to subcontractors and contractors

To maintain the appearance of the workplace, use techniques and practices that contribute to the appearance of a work area such as painting, lighting, dealing with clutter, dust collection, minimizing spills, and conducting routine maintenance.

Using preventive measures helps to keep the workplace clean. Once the work area, tools, and equipment are clean, they need to be kept that way. Continued housekeeping is one way to keep the work area, tools, and equipment clean. But the better way is to prevent these from getting dirty in the first place.

Root cause analysis, mistake-proofing, and the use of preventive measures are important to keep the workplace clean and orderly.

Equipment that is kept clean performs more efficiently and has less unscheduled downtime. Additionally, many organizations find that productivity and safety performance improve as housekeeping improves. **agl**

David Saul is executive vice president of Atlantic Risk Management, Columbia, MD, and an accredited risk advisor in insurance (AAI). His email address is: dsaul@atlanticrisk.com.

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Vega\$, Baby, Vega\$

by R. Clayton Funk

Columnist's note: While we have prominently featured the experiences of our favorite tower owner Johnny Multiple, this month we've asked him to author a column about how to "properly" attend a convention in Las Vegas, the site of the CTIA 2008.

Hey faithful readers of AGL! My name is Johnny Multiple, the founder and CEO of 20x TCF Tower Company based in the State of No Zoning. I've been asked to contribute to this issue by giving the readers of this fine publication some guidelines on how to maximize one's convention experience in the Adult Disneyland of the United States. As a veteran attendee of multiple CTIA, PCIA, IWCE, RCA and other alphabet soup conventions over the years held in Vegas I am honored to let you in on some secrets and pointers that you should consider before going to the show.

1. Rest. Yes, rest. But rest *before* you get here because *after* you get here there *is* no rest. You want rest after arriving? Get it on the plane flight home. Did you ever notice how every flight *to* Vegas is full of energy and excitement while every flight *out* of Vegas has at least 75 percent of the passengers asleep, drooling on their chins or neighbor's shoulders? Yep. That's the Vegas experience you want to have.

2. Get outside. Why? Are you kidding me? Do you realize how much time you are indoors throughout a conference? In your room, in the casino of your hotel, in the lobby, in a cab, in a restaurant, in the convention center, in meetings, in the bathroom. You need to focus on getting some fresh air! Go on a bike ride in the desert, go for a morning run, walk the Strip, lay by the pool, stroll to the neighboring hotel or casino, *anything* to get outside. You'll be reenergized and refreshed after.....

3. The nightlife. Vegas comes *alive* after it gets dark. In the daylight? Purely functional. Like every other city. But the evenings? All about fun on every level. What's your preference? You'll find it in Vegas. Pursue it, embrace it, live it. You know the saying. It's staying in Vegas.

4. Meetings. You are in a spot where nearly everyone else attending is *not* from Vegas. Make the time to schedule face-to-face meetings, get together, gossip, trade secrets, plan for the future, discuss when you'll get together next at your office or theirs, let someone take you out to dinner. Oh yea. That reminds me!

5. Dining in Vegas. The. Best. Ever. You feeling frothy and want to spend \$50 or more on a steak? Easily accomplished. You want to dine at an all-you-can-eat buffet with crab legs? Done. Enjoy fine wine? Endless options. Trying to save some money but want good quality and large quantities? You are in the best city for that and more. Food snobs can have New York, Chicago, San Francisco... give me Vegas anytime and I'll be a happy man.

6. Sessions. "Are you kidding me?" you ask. "Who has time for sessions?" After all, you're eating, staying out late, going outside for fresh air breaks and attending multiple meetings. But you need to attend some sessions, Check the program, highlight sessions that affect your business the most and go learn something. Every time I sit in a session I learn something new. New business strategies, operational suggestions and sometimes some regulatory updates. I know they aren't the sexiest way to spend time in Vegas but you can't gamble the *entire* time, can you? Wait. Don't answer that just yet.

7. Gamble. There are games of chance for all types of people. Are you a high roller and like to play \$1,000

per hand blackjack? You can. Is your preference quarter slots? Easily found in multiple casinos. But c'mon, there is gambling in the airport for crying out loud! You can at least spend \$1 and see what happens. You can't win unless you play.

8. Business cards. Bring them. A lot of them. Hand them out. Use them for note taking. Trust me, more people forget them than you can imagine. They come in handy, especially as a tooth pick when one isn't handy.

9. Nightlife. Did I mention the nightlife yet? It can take all forms. The tables never shut down in the casinos. No one ever unplugs the slot machines. The clubs? Are you kidding? The dance clubs don't get *started* until at least 11 p.m. When I say *night* life I mean late into the evening. A wise man once told me nothing "good" ever happens after midnight. In Vegas, all the real fun starts after that time. What a city. But that woman batting her eyelashes at you from across the bar? And you've never spoken to her before? And it's after 12 a.m.? Go up to your room immediately. Alone.

10. Get to the airport early. The longest security lines in the country have to be at McCarran International Airport. After CTIA? With thousands upon thousands of attendees? And, frighteningly enough, there are probably five other conventions going on at the same time. It's a madhouse at the airport. Get there early, grab a bite to eat, a cold beverage, and after you board your airplane try not to drool on yourself or the person in the seat next to you when you fall asleep. **agl**

Funk is managing director of Media Venture Partners, San Francisco. His email address is: cfunk@mediaventurepartners.com.

Use Wireless Technology to Protect Towers As They Age

‘Free Coffee Tomorrow,’ the sign says, posted in some restaurants across North America.

By David J. Southern, P.E

Have you seen the joke? “Free Coffee Tomorrow.” As soon as tomorrow comes, well, another tomorrow is on the horizon, with the renewed promise of free coffee. When tomorrow comes for many guyed towers that are at risk for corrosion damage, the consequences may be anything but free.

Tragic events involving anchor failures with guyed towers are drawing mostly regional interest with primarily minor property damage and some injuries. However, as evidenced in the aging buried metal industries, it may only be a matter of time before more serious consequences catapult this guyed tower anchor corrosion to the forefront of national telecommunications industry news. Consider tragic corrosion events such as the Carlsbad pipeline explosion (www.corrosion-doctors.org/Pipeline/Carlsbad-explosion.htm) or the Alaska pipeline shutdown (www.washingtonpost.com/wp-dyn/content/article/2006/08/07/AR2006080700131.html).

These tragic corrosion events led to new regulations in 2002 and 2006 within the federally regulated interstate transportation industry effectively stiffening regulatory oversight, inspections, reporting and certification of reports by senior company officers. As a result of the new laws, for the first time in history, company employees and officers are receiving jail time for negligence in corrosion practices and poor operating procedures.

24 above ground level

North America’s aging assets

Many of North America’s 30,000 guyed towers are celebrating their 20th birthday, as is the protective anchor coating that helps to keep them standing. Whether protected with a painted coating or a galvanized coating, these protective systems are nearing their expected lifespan, placing the future of many guyed towers at potential risk. The unseen danger to these giant structures is the corrosion often undetected several feet below ground level, making it almost impossible to inspect.

When the protective coatings fail, it is only a matter of time before destructive rust and corrosion significantly weaken the tension anchors.

Compounding the corrosion rate of buried metal tension anchors are two factors: new, unfriendly neighbors, and a changing environment.

New, unfriendly neighbors

Guyed tower structures are getting two new, unfriendly neighbors, one above ground and the other below grade.

Urban sprawl is pushing residential developments up the hill in search for more land and a better view, and as a result, increasing the hazardous consequence of a tension anchor failure. In terms of property damage and survivor litigation, catastrophic incident settlements could reach the millions. Towers that used to be in the middle of nowhere are now in the middle of somewhere and the new neighbors are more demanding and unforgiving.

The other unseen danger to guyed tension anchor towers is below ground. New and existing cathodic protection systems designed to protect other buried metal structures can interfere with the protective nature of tension anchor coatings leading to early failure. While most cathodic protection systems are implemented to not interfere with guyed tower structures, they too are getting new unfriendly neighbors that can effect their performance including:

1. expanding pipeline operations.
2. DC-power mass transit.
3. cathodic-protected bridges
4. cathodic-protected airport runways
5. other cathodic-protected buried metal structures.

To protect both their buried metal assets and their corporate risk profiles, many operators of buried metal structures are resorting to wide-scale deployment of cathodic protection systems and remote monitoring to ensure their investment in protection and risk aversion stays on line full time.

Changing environment

Whether you believe in global warming or not, many believe weather patterns





No one wants to come to a tower site to investigate an outage and find this: a mangled tower sprawled across the ground. As towers age, corroded guy anchors pose an ever-increasing risk leading to tower collapse.

are changing in one way or another. In most cases, annual rainfall patterns and dry periods are changing and this natural phenomenon can lead to changes to corrosion attack on buried tension anchors. The change in corrosion is usually not for the good. Ground moisture is one of the four elements needed to create a galvanic corrosion cell on tension anchors and if annual rainfall patterns change, so does the corrosion potential.

Some regional environmental changes in North America include high wind areas with record-setting wind speeds that can structurally load a tower to premature failure in the event of advanced unseen anchor corrosion.

Solutions

To ensure adequate protection of guyed towers a two-tiered corrosion prevention system is suggested. First install pre-engineered, passive sacrificial anode corrosion prevention systems providing a solution to all the corrosive conditions that might pose a threat to tower anchors. The sacrificial anode systems re-direct corrosion away from where it is not wanted and can provide superior anchor protection for 10 to 20 years.

To ensure the sacrificial anode systems operate as intended throughout their lifespan and are not subject to changing interference or environmental conditions, it is recommended the solution also

include a permanent ground reference electrode and test-head to allow for quick and easy measurement to ensure the sacrificial anodes are providing adequate protection to the tension anchors. The systems are easy to install on new and existing towers, and provide protection that meets or exceeds tower industry standards and National Association of County Engineers (NACE) recommendations.

Within the past 20 years, remote advanced corrosion protection systems were put in place to help extend the life of guyed tower tension anchors. However, due to the often-remote location of the systems, they fell into disrepair and became increasingly difficult to



Many operators of buried metal structures are resorting to wide-scale deployment of cathodic protection systems and remote monitoring to ensure their investment in protection and risk aversion stays on line full time.



This cathodic protection monitor shows the data radio that monitors the anchor-to-soil ground potential voltage to ensure the sacrificial anode system maintains the tension anchors at the recommended -850 millivolt threshold per NACE standards.

maintain. Now the corrosion protection systems are also aging to the point of needing increased care and monitoring. Adding to the maintenance difficulties are land use restrictions, national security access issues and increased unexpected corrosion rates.

Early cell phone technologies led some companies to try monitoring the corrosion protection systems remotely. However, cost of implementation, spotty cell phone coverage, monthly service plan fees and questionable security restricted the widespread use of wireless technologies to solve this difficult problem.

Fortunately, a new and promising wireless technology was recently introduced into the corrosion protection for guyed towers with the potential to provide remote monitoring for an economical price with no recurring fees or costs.

For maximum piece of mind, a cathodic protection remote monitoring unit (CP RMU) radio should also be installed

office computer, which in turn collects all the anchor-to-soil ground potentials for all the towers. Tower personnel can then remotely monitor the corrosion prevention systems without unnecessary travel, expenses and risk exposure.

Finish the job

For many of the same reasons why towers were constructed in the first place, tower corrosion prevention systems are being deployed today:

1. Public safety, company safety and operator safety.
2. Reduced operator windshield time, road usage, vehicle maintenance, risk exposure and general liability insurance.
3. Reduced operating costs: Operators spend time on vital company functions rather than driving around inspecting what can't be seen.
4. Automated and timely status reporting.
5. Timely operational data retrieval

on tension anchor sacrificial anode test stations. The number of CP RMU radios installed per tower depends largely on the height of the tower, high consequence to third parties due to failure, number or tension cables and the number of known cathodic protection systems within the influence area. The CP RMU radios monitor the anchor-to-soil ground potential voltage to ensure the sacrificial anode system maintains the tension anchors at the recommended -850 millivolt threshold per NACE standards. The CP RMU radios monitor and report the anchor-to-soil ground potential values to a centrally located

with enhanced automated trending capabilities and alarming functionality and automated operator notification.

6. Enhanced corrosion prevention performance: The systems get worked on in a timely fashion when problems arise, not three months later.

Today, multipurpose, built-for-purpose, all-in-one, corrosion protection remote monitoring, wireless, data communication radios monitor and report corrosion protection operations including anchor-to-soil potential, facility power status, facility interior temperature and backup battery voltage levels. They wire directly to field assets and feed critical tower operation information into existing or supplied company data systems without going outside the company's firewall security protection. The radios are relatively low cost, easy to install, have no licensing fees and no monthly recurring fees.

Each corrosion protection remote monitoring radio also can serve as an infinite data communication repeater site. Adding new radios extends the radio networks' ability to reach further into remote areas, thus enabling additional monitoring of remote compressors, energy fields, oil and gas wells, gas plants, pump stations and water towers.

Many energy and pipeline companies already own other similar radio products, and the new corrosion protection remote monitoring radios easily integrate into these existing systems with minimal investment and a tremendous return on investment.

Consider an advanced corrosion prevention and remote monitoring solution today and perhaps there will be free coffee tomorrow. **agl**

Southern is a cathodic protection product development manager with FreeWave Technologies where he is responsible for developing new remote monitoring technologies for corrosion prevention. He has a bachelor of science degree in engineering from the Montana School of mines with advanced education in remote automation. He can be reached at dsouthern@freewave.com or 866-923-6168; www.freewave.com/cp4.

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RBC Daniels acted as exclusive financial advisor to Guaranty.



has secured a
\$40,000,000
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Lattice Communications, LLC
has sold 10 wireless communication sites in IN, OH and KY in addition to certain development and attachment rights agreements to
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Duke Energy Corporation
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\$1,250,000,000
Revolving Credit Facility
RBC Capital Markets acted as Managing Agent.



\$480,250,000
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RBC Capital Markets acted as Co-Manager.



\$500,000,000
7.00% Senior Notes due 2017
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NATE Takes Safety Top to Bottom

A new initiative intends to make CEOs and managers who control contracts to tower climbers aware of the vital role they have in safety.

by Don Bishop

The National Association of Tower Erectors (NATE) has launched an initiative to take its safety message beyond its core membership of tower construction and maintenance companies to include wireless carriers, tower owners and general contractors. At the NATE convention in February, AGL interviewed three NATE leaders, board of directors members Kari Carlson of Tower Systems in Winter Park, FL, and Watertown, SD; and Kevin Hayden of Hayden Tower Ser-

vice, Topeka, KS; NATE's executive director, Patrick Howey; and Glen Orr, vice president of Golin Harris, Dallas, the organization's newly hired public relations firm.

AGL: *What are some steps in the new initiative?*

Orr: One part of it involves people at the show, which includes NATE members and others in the industry. The signature wall is a visible and physical step to sign. Part of the

initiative is for people to recommit to safety. NATE's focus has been on safety, but we never asked them at the show to take a physical step to commit to it.

Carlson: We're going to try to hit some tower industry and telecom venues and get the message across. It's important to reach the people at the top and repeat it in the language in the RFPs. We also want to get to the core, our tower climbers, and make them recommit to safety and have



NATE board member Ron Romano of Installation Services, Genoa, IL, signs the 'signature wall' as other NATE board members look on.

Signature Wall

PLEDGE: We, the undersigned, reaffirm our commitment to NATE's mission of safety and pledge continued focus to reduce risk in every project we engage in.

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Kari Carlson: 'It's important to reach people at the top and repeat [safety requirements] in the ... RFPs.'



Kevin Hayden: 'It is a cultural change to actually have safety as your main focus and top priority.'



Patrick Howey: 'To have safety is the only way of getting the job done. Safety is an ongoing process.'

the best education and training to be safe and come home every evening. It is the root of our goals. Obviously, we're in a high-profile industry, and if there are accidents or injuries, it makes headlines. We're promoting safety

to make sure we're doing our part to make sure it gets to the industry, top to bottom. We're focusing on safety to make sure we're doing our part to make sure it gets to the industry top to bottom.

AGL: *How effective has NATE been up to this point in reaching CEOs and managers?*

Carlson: It is more in a public forum. We would like the responsibility to be taken from all levels, top to bottom.

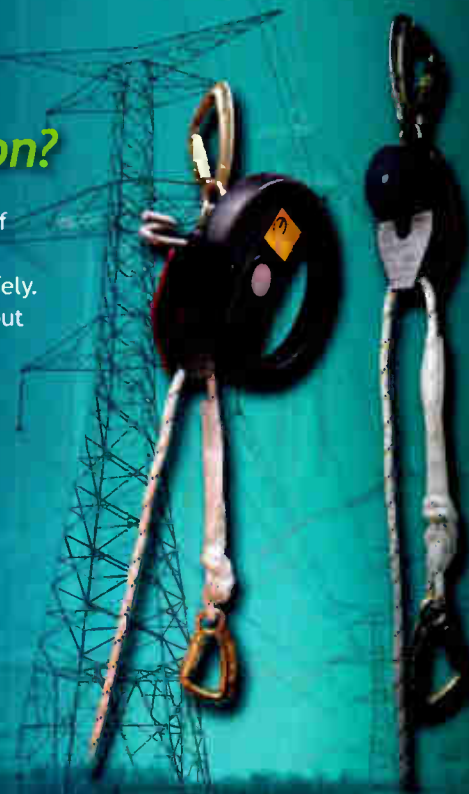
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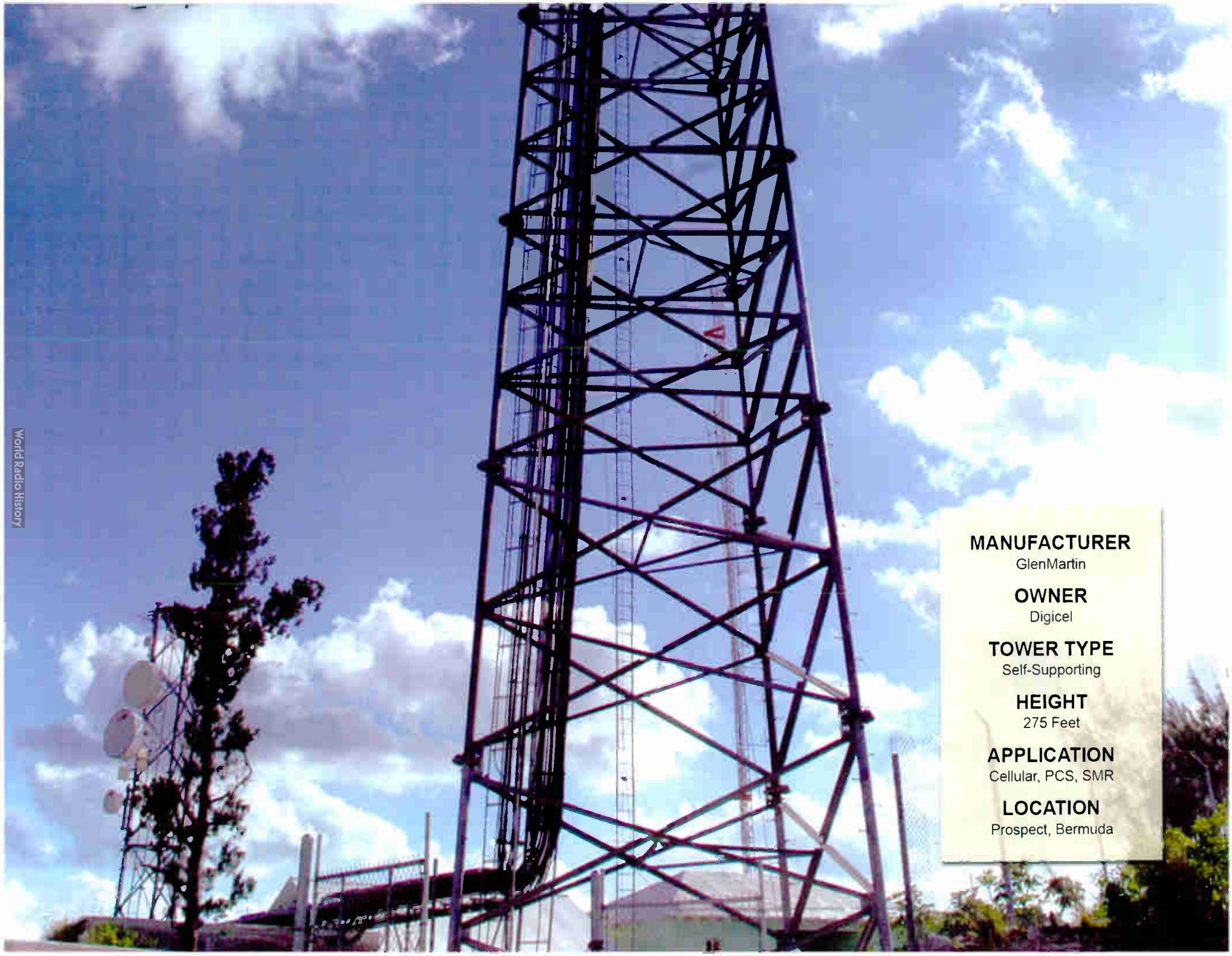


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With the new initiative, maybe get a bright light shone on that.

Hayden: Any company that uses our services and controls the contractors, whether the tower owners or people on the towers, any company in the industry, any company, any job.

AGL: *How do you communicate with them?*

Hayden: We remind them that safety is vital. It is a cultural change to actually have safety as your main focus and top priority. In his speech today, Assistant Secretary of Labor for Occupational Health and Safety Edwin G. Foulke Jr. mentioned the top management of the company being involved in safety. I was pleased to hear that. We want to

Howey: We could make presentations at Tower Summit, PCIA, whichever show were we can make the connection. We'll start with the ones we're familiar with.

Hayden: We also will reach out to other industries tangential to the tower industry, such as commercial property owners, buildings, for example, that gets ignored. Other industries where just general safety is important, and the chemical industry.

Orr: Golin Harris has been hired to develop a program that includes speaking opportunities at various trade shows in wireless, broadcasting and tower industries and also in tangential industries. We'll develop bylined articles and look for partners outside our industry. We have just begun to

talk with those. They are directly related to safety. We want to develop research, white papers and bylined articles to try to gain a toehold in media where we haven't had

a share voice. We want to push that message out, the message for safety is taken by individuals anywhere in the tower industry.

AGL: *Have you written a new slogan?*

Howey: "Safety: It's Up to You." No matter who you are, eventually you wind up on towers. To have safety is the only way of getting the job done. Safety is an ongoing process. Thinking back on my time at NATE, safety resources, educational sessions, partnering with OSHA, educating the

government on our industry have been steps to this point that have had an impact. Companies have come forward to get the resources to do things right, and to get access to the best practices out there. Now we're ready to take it a step further.

Hayden: Every time we sign up a new member for NATE, we see that as a success because they are taking a step toward safety. With the OSHA partnership, they have to meet certain criteria to make sure they are operating safely and want to raise the bar. We look at the OSHA partnership as a success, too.

AGL: *Were there any safety initiatives that didn't work, and that helped to guide you to the present path?*

Orr: NATE started 13 years ago. We had unfortunate incidents in the industry. We know we have to try even harder to educate people. This is the first time NATE has tried with a public relations firm, we hope this will help them to reach an even greater audience.

Carlson: This was brought up to us by members in Nashville. We took this upon ourselves to go down this road, and it has support from the membership. It was introduced to them yesterday to the voting membership.

Hayden: We want to grow the culture of safety, and it requires buy-in at all levels from those who climb the tower to the CEOs. It is behavioral change that will take some time. We are dedicated to that process.

agl

Companies have come forward to get the resources to do things right, and to get access to the best practices out there

reach out to trade shows and relay that message. This is a culture of safety and an ongoing process. Everyone who has an involvement ends up working on the tower, the climber himself, or the owner or CEO of a carrier, need to get past talking about safety and understanding that this is the only acceptable way of doing the job.

AGL: *How would you use the media for help? And would you be making presentations about safety at other trade shows?*

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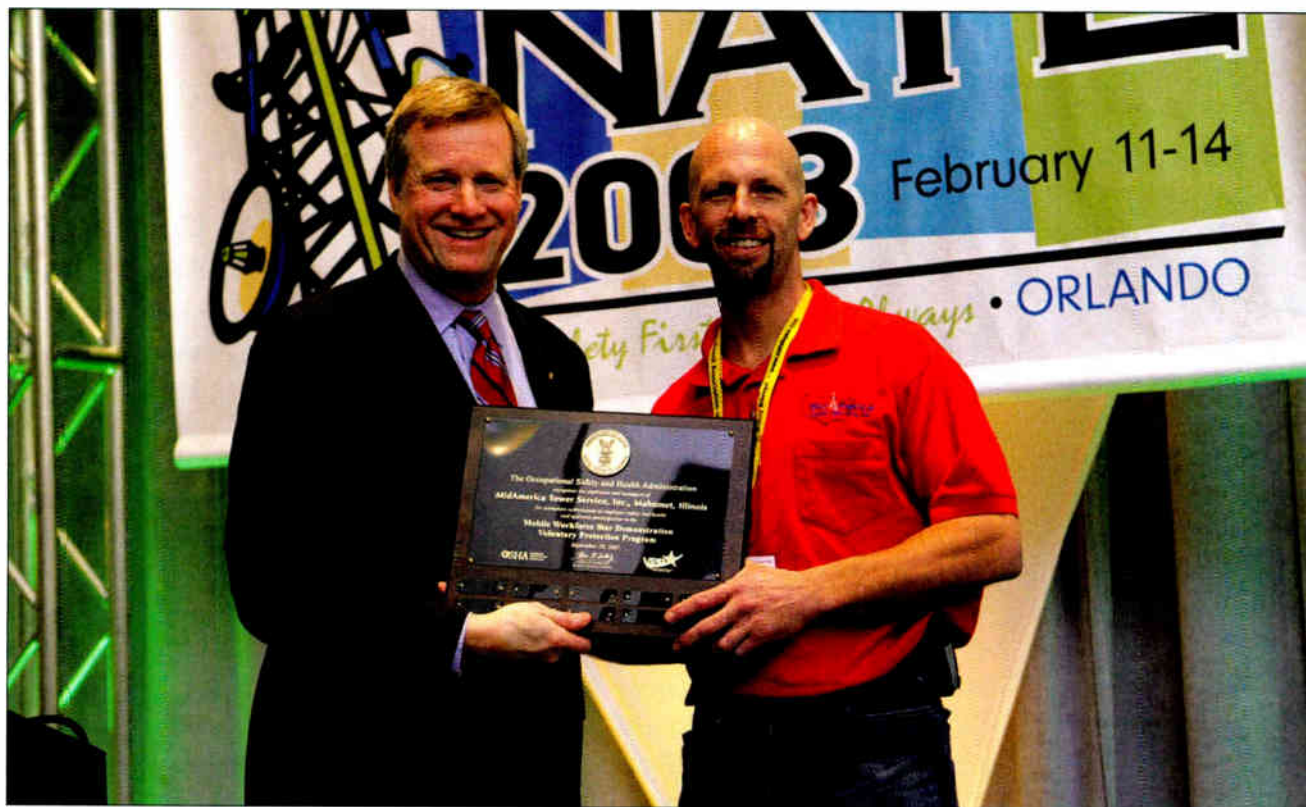
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Edwin G. Foulke Jr. (left), head of the U.S. Occupational Safety and Health Administration, presents MidAmerica Tower Service owner Phillip VanSwol with a plaque designating the tower contractor as a participant in OSHA's Voluntary Protection Program. The presentation was made during the 2008 National Association of Tower Erectors convention.

MidAmerica Tower Service: First OSHA VPP Tower Contractor

As the first tower contractor to be accepted into OSHA's Voluntary Protection Program, MidAmerica Tower Service showed that even small-sized companies could demonstrate the highest level of commitment to safety.

by **Raphaella M. Garrett**

MidAmerica Tower Service was founded as a small tower contractor central Illinois by Phillip VanSwol who has had a long history with the National Association of Tower Erectors. He attended the original NATE meeting in Fort Worth, TX, as a representative of one of the founding members. In 2000 Phil formed his own

company with four field employees including himself. During the past 8 years, the company has grown to become a full turnkey contractor with a combined field staff and administrative staff of 13 employees.

The company joined NATE as a member from the first day of business and during the first year, Phil

served on NATE's Safety and Education Committee. As NATE developed its Climber Training Standards, Phil modeled his own safety standards and policies on those recommendations. When Region V of the U.S. Occupational Safety and Health Administration entered into the first NATE-OSHA partnership in 2002, MidAmerica's

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Phillip VanSwol, owner of MidAmerica Tower Service (left), talks with Ken Koroll, a compliance officer with the OSHA Peoria Area Office, during an audit of the tower contractor's safety practices in the field as part of OSHA's evaluation of the company's application for the OSHA Voluntary Protection Program.

safety policies were already meeting or exceeding the requirements of the partnership. With the opportunity pres-

ent to take advantage of the partnership benefits, MidAmerica was one of the first group of tower contractors in

Region V to apply for and be accepted into the partnership.

The turning point for the company was June 2006 when we experienced a severe accident involving a capstan hoist. As a small company, we consider ourselves family, and this accident was devastating on many levels. The seriousness of the accident prompted an OSHA investigation. It was during this time that we learned two important lessons.

First, we learned was that OSHA was not there to point fingers, write citations, and place blame. They were fair and thorough and gave us an opportunity to learn and grow. We discovered that OSHA was not an entity to be afraid of, but an organization that is there to keep employees safe which became our common goal.

Second, we learned is that there was no negligence on the part of the company or employees. Employees were where they were supposed to be, doing

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what they were supposed to be doing, and no safety policies were violated. The accident was just that: an accident. It became clear that there is no such thing as "safe enough." I was hired at that time as a full-time safety and training coordinator. Phil and I began to put our heads together to find a way to take our safety program to a whole new level.

I learned about OSHA's Voluntary

Protection Program from a Region V OSHA presentation in Spring 2007. I was interested in the program, but was a little intimidated because the companies I saw participating were huge contractors with impressive safety programs and entire staffs of safety people.

After the presentation I pulled the presenter aside. In talking with him,



Acceptance into OSHA's Voluntary Protection Program allows companies to promote their participation. Notice the reference, 'The Nation's 1st OSHA VPP Tower Contractor'.

I learned that he was familiar with our company because of the 2006 accident. He was eager to speak to me. Because our company's program already had been exposed to OSHA, he knew that we were meeting the NATE/OSHA Partnership requirements and operating above and beyond industry standards. That meant we already had the elements in place for VPP. He said this was what OSHA's compliance assistance programs are for: "helping contractors like you reach goals in safety," and he encouraged me to apply.

Two months later our VPP application was submitted to the Region V office. The application was reviewed and in July 2007 OSHA conducted audits of our job sites and corporate office operations. On Sept. 28, 2007, Edwin G. Foulke Jr., assistant secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, signed our application, and Mid-America Tower Service became the first tower contractor to be accepted into OSHA's VPP program.

The benefits of VPP reach beyond the obvious: lower accident/illness rates, lower workers' compensation insurance rates, a lower Experience Modification Rating for insurance purposes, and promotional opportunities. It provided us an opportunity to be recognized for something positive rather than something negative in the

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MidAmerica Team

Everyone from MidAmerica Tower Service came to the NATE convention to enjoy the recognition the company received for its acceptance into OSHA's Voluntary Protection Program, with one exception: Dwane Flagg, civil technician. Here are the MidAmerica employees and OSHA representatives from left to right: Kevin

Mason, project manager; Phil VanSwol, president & CEO; Raphaella Garrett, safety director/office manager; Rex Morgart, program analyst, OSHA Office of Partnerships & Recognition; Ken Koroll, compliance assistance specialist, OSHA Region V; Kari Hall, project administrator; Edwin G. Foulke, Jr., assistant secretary of Labor,

US DOL; Jocko Vermillion, compliance and safety officer, and national tower expert, OSHA Cleveland Area office; Brian Szubinski, project manager; Rob Lovings, tower technician; Scott Barron, civil technician; Bret Beherns, technician; Rob Medlock, area director, OSHA Cleveland Area Office; Keith Mason, lead tower technician.

eyes of our peers, customers, and our industry. It has provided recognition for the employees who do much more than just sign safety manuals and wear hard hats. They've made the commitment to be leaders in safety.

The most valuable benefit of all is that we have developed a relationship with OSHA that is an open and positive relationship. By participating in VPP, we have proven to OSHA that we are continually striving for excellence in safety and although we may not be perfect, we are committed to reaching a level of safety above and beyond our industry and OSHA's standards and assuring that we keep our family whole. **agl**

Garrett is safety and training coordinator with MidAmerica Tower Service, Mansfield, IL.

"Knit One, Pearl Two?"
Hmmm, probably not.

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OSHA Chief on Safety: 'It's Personal'

Taken from his speech at the 2008 NATE convention and edited for length, here are the remarks made by the assistant secretary of Labor for Occupational Health and Safety, who also serves as the head of OSHA.

by Edwin G. Foulke Jr.

What you are doing today and while at the conference and what you do as an association tells me you care about your employees. You recognize they are a resource for you and not a liability on the asset sheet but an asset on the balance sheet. When all is said and done, what you are going to do from a success standpoint is how your assets are working for you and whether they are safe.

You are in a dangerous industry. If they make a mistake and they are not safe, there is a strong possibility they could be killed.

As we work on that bottom line making sure they get home safe and sound to their loved ones, then we know our other bottom line will show a positive.

I want to say thanks for what you are doing.

NATE/OSHA National Partnership

I signed a year ago a partnership with NATE to work together to identify those safety and health standards prevalent in your industry, to bring your expertise and our expertise together. I was briefed yesterday on what you have done as part of this partnership. Nearly 100 companies are participating, and that will be evident with established inspections and

self-audit checklists.

We established in our AKOSH construction advisory committee a tower group to give us your expertise and to have the input we need when we developed construction or safety and health standards that affect your industry. You have a unique industry; it is very unique work that you do.

I've dealt with your industry and that's why I'm so glad we're involved with this here. I practiced in a management labor law firm and headed their OSHA practice and worked with a lot of companies including the tower erection group.

I worked with a number of tower erection companies, and I had one time a fatality. I've done a lot of fatality investigations, and probably more than most lawyers, more than 200 OSHA fatality investigations. That one is etched in my mind because I can still see the pictures in my mind of the person who died.

It was a person who tried to help a newer employee while bolting up a cell tower. He hooked his lanyard on a climbing peg and was swinging over to help the person get his bolts in place. The thing slid off the peg, and he fell.



There were pictures of the fatality, and I can see the pictures now.

It is personal to me what you're doing. I tried to get here last time and weather stopped me and almost stopped me this time.

100 percent fall protection

Through the partnership, we sent letters to major owners, carriers and general contractors asking them that they adopt 100 percent fall protection for all worksites. That is what it will take to get to zero. That has to be your goal, and the goal of every employer in the United States. We have to get to zero injuries, illnesses and fatalities.

You may have to set interim goals to get there. But you can get there. I have



From left: Rob Medlock, area director, OSHA Cleveland Area Office; Rex Morgart, program analyst, Office of Partnerships & Recognition, OSHA National Office; Edwin G. Foulke Jr., assistant secretary of Labor for Occupational Safety and Health and head of the U.S. Occupational Safety and Health Administration; Ken Koroll, compliance assistant specialist, Peoria, IL, OSHA Area Office; and Jocko Vermillion, compliance and safety officer and OSHA national tower expert, OSHA Cleveland Area Office.

seen companies get there. Let me talk about some of the things the department has worked on.

It helps on hitting that bottom line again that we make sure they get home safe and sound. It will help you reduce illness and injuries and we hope eliminate fatalities. Reducing workers' compensation makes you more profitable and competitive. If we can do all the companies in the United States, to do this we keep more jobs in the United States.

In the paper this morning, they

are talking about General Motors and the problems they have. We have to remain profitable and competitive to keep jobs in America.

There are industry-specific safety courses: the OSHA 500 training course and the 30-hour and 10-hour courses on tower safety. Together, they have completed 20,000 hours of training 1200 employees on tower erection and safety and health. We have to work on that and make sure we are utilizing that. They are there for you people.

If you haven't had your safety person take the "train the trainer" course, and if your supervisors haven't had the 10-hour course, at a minimum, you need to do that.

OSHA officials

Jocko Vermillion out of the Cleveland office is one of the best tower experts we have. He has been working with NATE on developing these programs. Jocko has done things for us and probably has saved lives and probably has allowed



workers not to be injured because of the things he has done.

Rob Medlock, the Cleveland Area director, as done a lot. Rex Morgart, the program analyst for the Office of Partnerships & Recognition in the national office, the national partnership managers and part of the management team.

We have done a good job with this partnership and we are going to do a lot more, right? Because this is really important.

Tower climbing remains the most dangerous job in America. As I mentioned before it is the failure to tie off or failure to have safe points to tie off. Tower erection and climbers ranks No.

Rob Medlock (left), area director for OSHA's Cleveland Area Office, greets OSHA chief Edwin G. Foulke Jr. as Jocko Vermillion, a safety and compliance officer and OSHA's national tower expert from the Cleveland office, looks on.

We usually stand out as the best.
But occasionally we prefer
to just blend in.

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Edwin G. Foulk Jr.: 'Through the partnership, we sent letters to major owners, carriers and general contractors asking them that they adopt 100 percent fall protection for all worksites. That is what it will take to get to zero. That has to be your goal, and the goal of every employer in the United States. We have to get to zero injuries, illnesses and fatalities.'

I as the most dangerous job by fatality rates: 183.6 per 100,000 employees. We had 18 deaths in 2006. The next highest fatality rate is fishing and fisheries at 141.7. Then it drops to 87.8

We have some work to do. We want to get your industry out of the top 10. It is my personal goal, and now it is the goal of others.

Communications

One thing we've been good about is developing the lines of communications. What we have to do is for us to move the level down and reduce illness and injury is to work together. Safety has to be a commitment from every business owner, every manager, every CEO, every supervisor. I see a lot of Fortune 100 companies. I deal from Fortune 100 companies to moms

and pops.

I can go to a Fortune 100 company and ask, and they say, "We have a wonderful safety program. Look at our binders full of safety policies."

I ask, "If that is the case, how come your loss time injury and accident is above the industry average?" They don't have an answer for that. You are going to see more companies recognize that safety is important.

If you go to the OSHA website, look at the OSHA website, it is a great resource for your organization, your business. If you go on the site, on the top is the alphabet. Click on "m" for "Making the Case for Safety." You will see all the facts and information you need to

show how safety and health can help improve your bottom line. Companies have safety thousands and millions of dollars on safety and health.

We have a "Safety Pays" tool. You can put in the cost of one of your injuries, and then what is your normal profitability

Safety has to be a commitment from every business owner, every manager, every CEO, every supervisor.

rate. If you don't have one, it defaults to 3 percent. It will show you how much that particular injury or your cost for workers' compensation for the year. It will show you how much you have to do in sales to make up for that injury.

We have been working on this for a while, and just put it up in January.

Assistance for small businesses

We have a small business assistance part of the site. It will help you to identify OSHA standards you need to be compliant with. In that, it will give you

sites. Because to put it on ours would take an act of Congress sometimes.

Last year we had a billion hits. Probably some people in your industry who are not members of NATE, and they see what NATE has done and what we've worked together on. First of all, they may not know about NATE and how you are actively involved and

how people in your industry were partnering together and how OSHA must be OK to work with.

I look forward to expanding the partnerships down the road and continuing to do what we need to do.

We have our OSHA informational booth at your convention. Our experts are here to help you answer your questions. We don't ask you to fill out a questionnaire. We don't photograph you and take your fingerprints. Oh, we're not doing that this time?

There is all that information there,

and we go through all the guidance that could be helpful to you. As a side set of what we do, we can help you to be successful. There's nothing wrong with being safe and successful.

We also, for you small- and medium-sized employers, we have an onsite consultation program, a free service. Notice the theme here: free.

If you're a small- or medium-sized business and you haven't taken advantage of this, you need to. OSHA provides money to state departments of labor and they provide on-site consultation. You can request, and they have a safety and health professional come out and look at your safety program and assess the hazards of your business and develop ways of correcting those. Last year, we did 35,000 on-site consultations.

We also have SHARP. That's a great program because it allows us, for those companies that have their list time rates at or below average, they can get into this program. OSHA comes in separate from the compliance section, they will come to help you to get your worksite continue to improve it so that we can recognize you as having a worksite that is beyond what OSHA requires.

Voluntary Protection Program

We have "OSHA Challenge" for those who want to be in a voluntary protection program, but are not here yet because they don't have everything they need to make the requirements of the VPP program because it is a very difficult program.

You might ask, "Why would I want that?"

The facilities in VPP, their lost time is 53 percent below industry average. Are your lost time averages below the industry average? If not, what do we need to do to get there? With the OSHA Challenge, an administrator, a non-government employee, is assigned to you. There is a three-step process to move the facility up to VPP.

The administrator that helps that particular company, they work together to develop and improve and so when they get through the third step, they're ready to get into VPP. The

If you're a small- or medium-sized business and you haven't taken advantage of this, you need to.

model policies, best practices, and it will give you model training programs you can download and use. All this is free. You will see a list of all the guidance documents we have.

You can access help for your company to have a better safety program and in the long run save you a lot of money, and it doesn't cost you a dime.

The nice thing is, and we're doing with NATE in our partnership website, we are tied in, on your website and you're linked to ours, and we're linked to yours, the stuff we develop is on your



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whole idea is that the "Challenge" administrator helps the company, and all this is free.

I want to congratulate NATE for its role in VPP. It has been encouraging members of the association to attempt VPP. It goes back to the bottom line. I talked about in the beginning about the goal to reduce injuries, illnesses and fatalities, and let people go home at the end of the day. VPP is the best of the best.

It is a four-part program.

First is employer commitment. It is not the sign at the entrance to the building. It is not the plaque on the wall that says, "We believe in safety and health for all employees," and signed by the plant manager.

At its plant in Lynn, MA, GE was committed to safety and health. We found out we could make a difference. When the company held a celebration and ceremony to receive its VPP flag, four thousand people turned out for the event.

As a side set of what we do, we can help you to be successful. There's nothing wrong with being safe and successful.

Any time you have four thousand people in one place for an event it will attract politicians, and Sen. Edward Kennedy attended. When the announcement was made, four thousand people started jumping up and down with excitement. Sen. Kennedy turns around and looks. He hasn't seen this before.

Sen. Kennedy stood up and took half my speech, which was all right, and then he gave the plant manager the plaque. She is holding it above her head and shaking the plaque. Four thousand people are standing on chairs at this point. I told them to get down, it wasn't safe.

I gave the flag to the five union reps, and they are shaking the flag up and down. Four thousand people are jumping

up and down. The union guy says, "We couldn't work on things together, but we could agree on safety and health, and now we cooperate on many things."

Cultural change

Safety tells employees that the company cares about me. Maybe I need to

be safe at home, too.

There is a cultural change. It affects health care cost at the company, and there also is a change where they start thinking about the company and how I need to do a better job and be more productive and not be injured on the job because productivity goes down.

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Members of NATE's board of directors join OSHA chief Edwin G. Foulke Jr. at the 'signature wall.' From left: Patrick Howey, executive director; Jim Coleman, director; Pat Cipov, vice chairman; Kari Carlson, director; William Gathright Sr., director; Kevin Hayden, director; Don Doty, chairman; Foulke; Terry Sharp, secretary-treasurer; Kevin Reski, director.

That is why this is so important. VPP has been effective with improving productivity. You can start with safety and health. No one disagrees with that. You have a place where you can start, and your employees believe in safety and health and if they know you really care.

The CEO says, "Don't do that because you might be injured." I've had employees tell me that. "The CEO told me not to do that. He really cares about me. Maybe this company really cares about me and I should stay here."

GE is one of our VPP corporate part-

ners. They reduced company-wide record-keeping of industries by 75 percent. They lowered their insurance premiums accordingly and saved \$61.5 million a year.

Another nice thing about VPP is many companies in VPP give back as part of this program. They have special government employees helping us and go to inspection sites for VPP. We have a group come in for your star and flag, two or three special government employees doing this on their own time and their own dime. We have over 800 special government employees trained and working with us.

Let me tell you another personal story.

Soldiers returning home

When I was traveling to one of the meetings I attend, we arrived in Louisville, KY, and the flight attendant says over the public address system, "Stay in your seat, and you can use your cell phone." Then as we taxied up to the gate, she came on the public address again and said, "I would appreciate it if everyone when we get to the gate, you would stay in your seats. We have three soldiers in the back of the plane who

have been in Iraq for a year, and we would like to let them get off first.”

Normally when the door opens, if you are not fast, you will be trampled. But everyone stayed in their seat. Three male soldiers, the oldest maybe 22 years, they came off and everyone started to applaud.

The Lord watches over me because I wouldn't be in this position if it weren't for him. I was in the first row of the plane. Usually we get placed in the back. I got to follow the soldiers out and through security. Their wives were there, and they all had young children. Two or three were holding babies, and two had children a little bit older hanging on to the soldiers' legs. I stopped for a minute to observe. I noticed that there was one woman, one of the wives, and there were others there, maybe mothers and dads and some friends. One of the wives was hugging her husband and wouldn't let go.

At that moment, it struck me that

this is what happens every night when people go home safe and sound to their loved ones. We don't see kids hugging our employees. If a wife knew that her



husband wouldn't come home because he would be killed on the job, she wouldn't let go, either.

People talk about legacies. What's your legacy? "I made \$10 billion" or

whatever. "I have a 20,000-square-foot home."

I believe on the last day when you go see the guy in charge or the woman in charge – cover all the bases there – and you are asked what was your legacy and you can say, "I ran my company and I was the supervisor," or whatever, "working with NATE and they put some great safety and training programs together and policies and we worked together, and maybe somebody didn't get injured on the job because of something I did. I don't know, because if you prevent something, you don't know it didn't happen. Maybe I helped someone not get killed on the job.

"No one knows what I did because my employees didn't know all the things I was doing."

Maybe that's the best legacy someone can leave, helping your fellow man and woman. Thank you for the job you're doing. agl

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NATE/OSHA Partnership Nears 100 Participants

At the 2008 National Association of Tower Erectors convention, NATE's Gordon Lyman and OSHA's Rob Medlock updated an audience about progress made during the first nine months of the national partnership between the trade association and government agency.

by Don Bishop

One-half of the NATE/OSHA National Partnership got its start long before the partnership began. The National Association of Tower Erectors, Watertown, S.D., formed in 1995 as a means of giving a group of tower construction and maintenance companies a voice in Washington, D.C.

The next year, NATE created its Tower Task Force as a group within the organization to focus on communication. The Tower Task Force helped to educate NATE members about the role played by the U.S. Department of Labor Occupational Safety and Health (OSHA). Conversely, the Tower Task Force helped to teach OSHA about the intricacies of tower construction and maintenance.

As NATE focused more and more on safety, it had increasing contact with OSHA. OSHA developed its 10-hour and 30-hour training classes and became a resource for NATE members about safety programs. OSHA has conducted OSHA 500 classes three times to allow tower professionals to become instructors of the 10- and 30-hour training.

By 2001, NATE and OSHA began a partnership within OSHA's Region 5, an area centered on the Great Lakes. The goal of the partnership was to encourage the development of better safety programs, the use of best practices for safety, and the elimination of employment-related illnesses, injuries and fatalities.

The Region 5 partnership signed up 50 members each year. The regional

partnership has led to the training of 1,700 tower hands to the OSHA 10-hour level and 700 tower hands and safety specialists trained to the OSHA 30-hour level. Through the partnership, self-safety audits were performed on 1,800 tower sites. Hundreds of potential hazards were identified and abated.

The pilot program that the Region 5 partnership represented led to the creation of a national partnership in 2007. One reason for taking the program national is because NATE's membership is national. Also, some members outside the partnership region felt as though they had less incentive to participate in OSHA programs.

The national partnership expanded upon the regional pilot project to include general contractors, tower owners and wireless telecommunications carriers. The partnership team

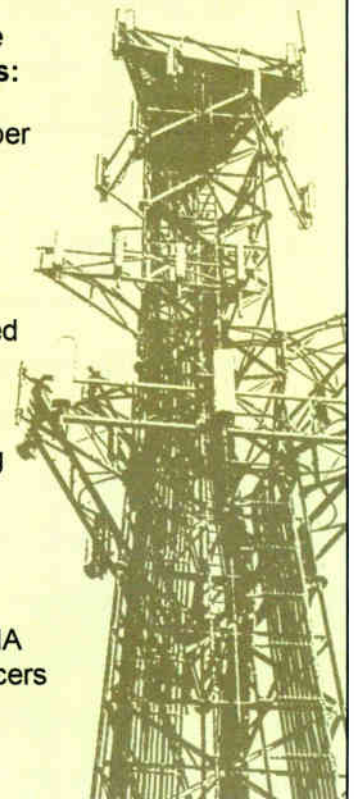
includes representatives from NATE and OSHA who meet during a conference call every two months to address pending issues.

Reflecting the positive results of the partnerships between the two

At a Glance: The NATE/OSHA National Partnership

Results from the first nine months:

- 97 NATE member companies participate
- 700 tower site safety audits completed
- 1,230 tower hands receive training
- 232 hazards identified and corrected
- Dozens of OSHA compliance officers trained





Gordon Lyman explained the NATE/OSHA National Partnership history and how a potential participant qualifies. Lyman, of WesTower Communications, San Antonio, TX, is chairman of NATE's OSHA Relations Committee.

government and industry organizations, OSHA's top official, Edwin G. Foulke Jr., the assistant secretary for Occupational Safety and Health at the U.S. Department of Labor, spoke at NATE's conventions in 2007 and 2008. The partnership facilitated a fast track for addressing issues such as revisions to CPL 2-1.36 whereby tower hands are allowed to ride the line and be hoisted to elevations on the tower. The partnership also provides a network for addressing future issues that may affect the tower erection industry.

To participate in the partnership, applicants must complete and sign the application-agreement form, which then is reviewed by NATE. Applications that the trade association approves are forwarded to OSHA for its approval. As part of that process, OSHA reviews the applicants' backgrounds. OSHA advises NATE as to which applications it approved, and NATE contacts the approved applicants, sends certificates and issues

employee ID cards.

Staying in the partnership means meeting requisite levels of training, such as the OSHA 10-hour and 30-hour certifications, the crafting and use of a safety and health plan, keeping a competent person on all work sites, and conducting complete audits. For example, the management must conduct a minimum of two site safety audits per month, and submit audits to NATE on a quarterly basis. NATE accumulates the data and sends it along to OSHA. Participation leads to recognition for the partners through a monthly listing in NATE's magazine, *Tower Times*, and with a listing on the NATE and OSHA websites.

NATE and OSHA are seeking additional participants for the partnership, especially tower owners, wireless carriers and general contractors. Those

who join will meet safety requirements established by NATE tower safety checklists and will be required to hire qualified climbers as defined by the

The national partnership expanded upon the regional pilot project to include general contractors, tower owners and wireless telecommunications carriers

NATE checklist for evaluating qualified contractors.

During the first nine months of the NATE/OSHA national partnership, the following results were obtained:

- 97 NATE member companies participate.
- 700 tower site safety audits completed.
- 1,230 tower hands receive training
- 232 hazards identified and corrected
- dozens of OSHA compliance officers trained.



Rob Medlock, area director for OSHA's Cleveland Area Office, offered details about the goals for the OSHA/NATE National Partnership and about OSHA's Voluntary Protection Program.

The real benefit of participation is helping to further improve safety for tower climbers and their companies. Additionally, cost savings are obtained through reduced workers' compensation claims, reduced on site costs derived from efficiencies that flow from a safety program, and lower insurance premiums. OSHA also offers partners benefits during inspections, such as penalty reductions and sometimes no

penalties for infractions that otherwise might be penalized. OSHA conducts "limited scope inspections" instead of comprehensive inspections for partners. Partners also are less likely to be inspected.

More information about the partnership is available at www.natehome.com or email Shelley Trego at the NATE office at shelly@natehome.com.

The next application acceptance is

scheduled for May 1, 2008.

agl

This article is based on information compiled from presentations made at the 2008 National Association of Tower Erectors convention. Presenters included Rob Medlock, area director, OSHA Cleveland Area Office, and Gordon Lyman, WesTower Communications, San Antonio, TX. Lyman is chairman of NATE's OSHA Relations Committee.

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Backhauling to the Future

Wireless penetration and next-generation cellular technologies open doors for changes in backhaul technology.

by J. Sharpe Smith

Call it technological and emotional transference. Today's cellular consumers are looking, more and more, for their phones to act like their computers do at home. Therefore, demand is increasing for Internet connectivity, video downloads, texting, mobile music and other data downloads. Only one problem. Cellular backhaul speeds are still too slow to handle this traffic.

"There is significantly more data going over the wireless networks compared with just a few years ago," said Dave Stehlin, president and CEO, Ceterus Networks, which provides transport solutions enabling Ethernet and legacy service over copper or fiber.

Cellular carriers will experience additional traffic, merely from continued penetration into the population. The number of subscribers is expected to grow from 2.5 billion in 2006 to 3.6 billion in 2010, with an accompanying increase in minutes of use per subscriber, according to Infonetics Research, a market research and consulting firm.

To address the demand for additional capacity, wireless operators plan to roll

out the next generation of bandwidth-intensive mobile networks – such as 3G/4G cellular Long Term Evolution (LTE), Wi-Fi and WiMAX. Wireless operators are also increasing the capacity of existing base stations, as well as adding more base stations.

"The amount of bandwidth required by each wireless device is only going to increase. That sucks up bandwidth, which then becomes the biggest catalyst for the need for more bandwidth out to the tower," said Stehlin. "Carriers don't want their backhaul to be the stumbling block to offering these new services, because they mean more revenue."

Backhaul economics

Currently, a majority of cellular service is backhauled using copper T1 lines, which provide only 1.544 megabits of throughput both ways. The T1 lines use time division multiplex (TDM), which divides the time domain into several timeslots, one for each sub-channel. Used for circuit mode communications, TDM is decreasing in popularity with the introduction of voice over Internet protocol.



DragonWave's Greg Friesen: 'As we move to WiMAX, customers are asking for 20 megabits and above. It varies from 20 to 50 megabits per site, depending on the carrier's penetration rate.'

As traffic grows, a carrier will add T1 lines to keep up its capacity. However, when the number of T1s climbs above five or six T1 lines, either a DS3 line,

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Using microwave for backhaul at a cell site places the connection up and away from possible flood damage—provided the base station equipment is unaffected—but may expose it to other possible damage from vandals with rifles.

fiber optics or wireless system can be used for backhaul.

Fiber optics are ideal for highly populated areas, and microwave has been used for less populated areas. While fiber optics would handle the increasing bandwidth demand, it is expensive to deploy. “It would cost hundreds of millions to run fiber to all of the cell towers,” Stehlin said. “For example, if it takes 2,500 towers to cover a market and it costs \$100,000 a site, you are spending \$250,000,000 just to upgrade the backhaul.”

Fiber optics are not going to replace all other forms of backhaul, although it will be a solution in certain, high-density population environments with very high-capacity communication needs, according to Rich Biby, P.E., founder of Five Nines Communications, a wireless backhaul provider. [Biby is the publisher of AGL. —ed.]

“Certainly in places like Fairfax County, Va., Cox and Comcast are doing very well with bringing fiber optics into cell sites, but that is not going on everywhere. It’s going to be a long time before you get fiber optics out to every place,” Biby said.

‘4G effect’

In the past three years, Greg Friesen, director of product management, DragonWave, has seen the capacity of his backhaul systems more than quadruple to handle the traffic demands of his customers.

“We were at six T1s before, which

is about 10 megabits. Now, as we move to WiMAX, customers are asking for 20 megabits and above. It varies from 20 to 50 megabits per site, depending on the carrier’s penetration rate,” Friesen said. DragonWave’s middle tier sports a capacity of 100–200 megabits and its highest tier can handle 400–800 megabits for the densest population areas.

With the point-to-point microwave market moving to provide the backhaul needs of cellular, DragonWave has increased the breadth of its TDM portfolio to handle the legacy requirements of the carriers not ready for Ethernet.

Booming backhaul market

With the growing demand for capacity, manufacturers are providing carriers with new backhaul products specifically designed for expanded bandwidth. Many operators are evolving their networks toward all-IP technologies for both fixed and mobile backhaul applications.

For example, the Eclipse and TRue-point platforms from Harris Stratex Networks provide radios optimized for point-to-point and nodal wireless backhaul network solutions.

The Mobile Evolution Transport Architecture (META), available from Alcatel Lucent is another technology that enables CDMA and GSM/UMTS mobile operators to move from TDM to all-IP. Using Ethernet, META provides high capacity mobile broadband services, which is designed to reduce costs.



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Another example is a smaller vendor, Trango Broadband, that previously worked primarily in the unlicensed space, until recently when it announced a licensed-band line of carrier class, Ethernet based, point-to-point wireless microwave systems.

"What we saw was a shift starting to occur in the marketplace where people were not only asking for much higher capacity backhaul links in the unlicensed bands, but also moving into the licensed bands," said Frank Draper, Trango Broadband vice president, sales & marketing. "As people start needing more and more capacity, we thought it would be far more appropriate to use the licensed band."

New point-to-point products have been announced in the licensed spectrum at 6 GHz, 11 GHz, and 23 GHz bands. More frequencies will become available in the second half of 2008. Some of the products offer 100 megabits, upgradeable to 300 megabits. The 6 GHz is a 165 GHz throughput.

"It opens up a new market for us in cellular carrier backhaul, totally," Draper said. "We have had requests from cellular carriers regionally and for small projects."

Service providers' hybrid backhaul

All of this points to a need for a breakthrough in broadband backhaul. Five Nines Communications and FiberTower are answering this need by providing backhaul through a hybrid of point-to-point wireless and fiber optics.



Wi-Fi service providers may find microwave advantageous for backhaul especially at high-elevation sites remote from population centers where fiber may not be extended.

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"Carriers should look for alternatives for backhaul," Biby said. "Do they want to save money? Do they want to be more competitive? If you look at the business model, there is a huge cost savings if

of smaller companies."

FiberTower provides a microwave link using licensed spectrum that is placed between the tower and the FiberTower fiber-optic exchange point, and from there the signal goes via lit or dark fiber to the carrier switch.

"Being a microwave service provider makes us far more flexible, so that we have been able to future proof our deployments by installing radios that support both TDM (2G voice) and very high bandwidth Carrier Ethernet (3G and 4G data)," according to FiberTower.

FiberTower will provide Sprint Nextel with backhaul services in seven of the wireless carrier's initial WiMAX markets. The Ethernet-based backhaul deployment will be a first for any mobile backhaul provider.

Sprint plans to have commercial WiMAX service available in a number of markets starting April 2008 with anticipated coverage of 100 million people by year-end in conjunction with Clearwire.

Optimizing copper backhaul

Another option to achieve cost-effective Ethernet connectivity, according to Stehlin, is to Ethernet-enable the prevailing copper network, thus improving the efficiency. The next phase would involve slowly deploying fiber optics as needed, he said.

"Carriers, like Sprint, will need to get Ethernet out to thousands of cell towers to get full coverage, very quickly. The

quickest way and least expensive way is to Ethernet-enable the T1 lines, which are already run to 90 percent of the towers," Stehlin said.

To speed the transition to Ethernet, Ceterus Network's technology is designed to modify the TDM protocol to enable the legacy T1 line or a bonded group of T1 lines to carry the Ethernet protocol. It creates a pipe and then slices the bandwidth in two: data is carried over Ethernet and voice goes over TDM.

"Where carriers have the demand for higher bandwidth, they can cherry pick and run fiber to those locations," Stehlin said. "As more users get on the network, they can go back and retrofit the individual tower sites with fiber optics. Fiber will eat away the market, but it will be over a long period of time."

Conclusion

The issues with backhaul could be described simply as growing pains, not unlike when the cellular industry transitioned from analog to digital. In ways they are similar. Remember dual-mode analog/digital phones? They are a reminder that any introduction of new technology is usually most cost-effective when the changeover can occur over time. The same will be true for the transition from TDM to Ethernet in the backhaul arena.

Whether it is a local exchange carrier (LEC) or a competitive LEC, the transition to Ethernet is a change to the backhaul infrastructure that most carriers will have to undergo to keep up with the broadband flow of data. **agl**

If you look at the business model, there is a huge cost savings if you can aggregate the capacity of multiple carriers into a wireless backhaul network

you can aggregate the capacity of multiple carriers into a wireless backhaul network. With the cost of radios, it is about \$15,000 a link."

According to FiberTower, "Microwave is cheaper and faster to deploy than fiber, but the challenge of cost and time of building networks still exists. And yet, the transition from copper ... to microwave and fiber must happen for 3G and 4G mobile broadband to be successful."

When talking with carriers, Biby often has to deal with questions about the dependability of microwave, which has 5X9, or 99.999 percent, reliability and can be backed up by hot-standby radios. He tells the carriers they can have as much reliability as they want to pay for, and besides, T1 and fiber optic lines are not impervious to being cut.

"Some carriers are afraid to try any other option for backhaul than Verizon," said Biby. "They won't even consider alternative methods to T1 for back haul, because they don't want to use a number

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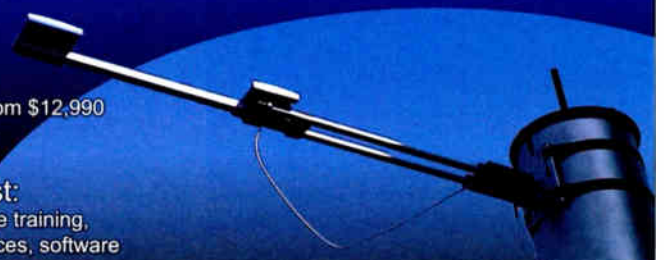
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