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Critical Issues

By Stan Orr, CAE

Results thus far have surprised even the seasoned leaders of this organization, and for perhaps the first time in its history, we are sustaining organizational success.

It is not news to anyone that we are living in challenging times at all levels of our personal and professional lives. So it stands to reason there are critical issues facing the asset-management profession. As such, it is the responsibility of this association to meet those challenges head on.

In November 2007, the AEMP Board began an extensive planning process. It has not been the typical “let’s write a strategic plan,” but rather it has been a frank, in-depth look at the association. The Board worked to define what will constitute value for the members and the profession; to identify critical industry issues; to develop strategies, implement and monitor those strategies; and, in the process, to earn a reputation for relevance.

I have always believed there are three keys to sustaining organizational success at AEMP. A Reputation for Value, i.e., a product portfolio of good “stuff”; an Enjoyable Culture, one based on communication and trust; and a Nimble Infrastructure, one that allows AEMP to quickly seize opportunities to create value.

The results thus far have surprised even the seasoned leaders of this organization, and for perhaps the first time in the organization’s history, we are engaging those three keys and sustaining organizational success.

A culture of trust and communication was demonstrated in November, when AEMP members at the first-ever Asset Management Symposium spoke loudly and clearly that technology integration was perhaps the biggest challenge facing them. The result was the creation of a Technology Task Force to address the issue. The group’s work has resulted in the creation of a White Paper on the issue and the establishment of a Technology Summit in August, when the task force will meet with key leaders of the major OEMs. It is the first step of a process that will likely include engaging the “third side” of the equipment triangle: the providers of fleet-management software and enterprise solution providers.

That culture was further demonstrated when members told the association that emissions, i.e., governmental regulations, is another critical issue. The result was the creation of an Emissions Task Force, and the development (still underway) of an emissions central web site for AEMP members.

AEMP’s reputation for value is definitely on the increase. The AEMP Foundation recently awarded eight scholarships to students wishing to enter the technician profession. Workforce issues are another critical issue identified by members, and the Foundation is doing its part to address it. The goal of the Foundation is to have as many as 100 students per year graduating from technical schools.

In June, the AEMP and Board met for its annual Leadership Retreat. This event, which is open to all members of AEMP, has grown in size and importance in the past two years, as attendees engage in determining the

Continued on page 6
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What Have You Done for Me Lately?

By Dick Brannigan, CEM, 2008-2009 National President

Ever have one of those days? I suppose all of us have them, but lately they seem to occur more frequently. Today was certainly one of them with the nonstop phone calls, phones stuck to both ears, somebody always waiting outside the door, the boss wanting answers to numerous pressing questions, and everyone basically wanting a piece of me. I guess it comes with the territory, so I’ll stop my complaining long enough to try to make my point.

On these kind of days when I’m really struggling to keep up, what I need most (and no jokes here about employment outside the service industry) is quick and easy access to information. Our equipment-management world now revolves around our computers and the collection, storage, organization and management of data. Whether or not that data becomes useful information depends to a large degree on our IT departments and the “friendliness” (no jokes here either) of our fleet-management and report-writing software.

The success or failure of our fleet-management programs depends on using this data for timely decisions and actions throughout the unit’s life cycle. Poorly organized or hard-to-retrieve information is as bad as too little information. Our preventive maintenance, life-cycle costing, budgeting and replacement-planning programs only work for us when correct information is available, timely, organized and able to provide us with understandable management reports.

The manufacturers, dealers, telematic providers and numerous vendors have done marvels for our industry in providing the data we need to keep our fleets running; from onboard diagnostics to service and parts information, we have seen great improvement in product support. Their websites allow us access to previously unimagined resources. Our current problem lies not in the volume or access to information but rather in the collection and integration of that information.

The wish lists of yesterday have evolved from “I wish I knew this or I wish I knew that” to “How I can collect, store, organize and manage all the data?” and finally into “How can I possibly integrate all these different systems and information streams?”

Your association is working hard to get answers to this key technology question. We have formed a “Technology Task Force” to explore possible solutions for ease of integration. Our goal is to use our “Equipment Triangle” approach and discuss the possibilities and common needs of the end-users, manufacturers and distributors. As with any journey of discovery we are not sure what lies ahead, but we are hopeful that ease of integration becomes the norm and not the exception.

Dick Brannigan
President, AEMP
AEMP will host the industry’s first-ever Technology Summit August 6-7 in Chicago. All major OEMs who have responded to invitations will be a part of the Summit, including Caterpillar, John Deere, Komatsu, Volvo, and Manitowoc. The goal of the AEMP Board is to begin a dialogue with the OEMs, followed by future meetings that will include software providers.

AEMP’s Board believes there is an “Equipment Triangle” solution to the challenges of integrating OEM technologies. This issue is one of six critical industry and association issues that the AEMP Board is currently addressing through its strategic planning work, which resulted in the creation of a special task force made up of industry-leading end users. They developed the following white paper as a means to begin meaningful dialogue. Members are urged to visit the association’s website at www.aemp.org for updates on this emerging critical issue.

Executive Summary

Today’s asset manager is increasingly required to enhance the productivity of his company’s equipment, with less downtime, lower cost of ownership, and extended machine life for his/her mixed fleet being a requisite for success. To assist the end user, the major manufacturers have each developed robust technology solutions that assist in the management of their respective equipment. These technology solutions include Product Link for Caterpillar; JDLink for John Deere; Komtrax/ VHMS for Komatsu; and CareTrack for Volvo.

The diverse nature of these databases and info sources makes integration into a single fleet management or business enterprise software a daunting challenge to say the least. The implications of easily integrated equipment data are dramatic with cost savings, and thus the potential for increased profitability, achievable at almost every

Critical Issues

Continued from page 3

strategic direction of the organization while learning ways to increase their own leadership skills. Critical issues that were addressed at the meeting, and which members and the industry will see as further proof that AEMP has a portfolio of “good stuff” that is of value to you the member, included:

*Technology. Rapidly changing and diverse technologies are impacting equipment costs and personnel requirements for fleets. This is driving the need for AEMP to participate in finding technology-application solutions for all partners within the equipment triangle.

*Asset Manager Business Skills. Asset management is becoming an increasingly complex business requiring an extensive set of business management skills. Yet challenges in attracting the next generation of managers threatens the future of the profession and AEMP.

*Governmental Regulations. Regulations at the local, county, state, and federal levels are increasing in a variety of areas—not just emissions—and are challenging the capacity of companies as well as a fleet manager’s ability to interpret and manage emerging regulations.

And finally, in order to maintain a nimble infrastructure, the Board explored ways to streamline its governance. The board recognizes that to earn engagement from the members, they must work on things that matter to them and demonstrate the work is making a positive difference in the industry. To do that requires a shift in the way the Board and committees conduct their business to provide for more streamlined, nimble processes.

As AEMP continues as an organization that is all about acumen—sustaining knowledge and using it well to ensure value is being received—I am confident the industry’s reliance on AEMP as the premier organization for delivering value will continue to grow.
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step in the equipment’s life cycle. No matter what the fleet size, whether using a standalone or enterprise system, timely retrieval and integration make for better informed decision making.

The Issue
Today’s construction fleets are almost exclusively mixed OEMs. As a result, the equipment manager’s tracking of the entire fleet in a uniform, integrated manner is virtually impossible to do effectively and efficiently because of the diversity of the sources storing equipment information.

The Task Force has discussed the issue extensively and believes there are opportunities for discussion to find solutions. There are however, many obstacles to overcome:

- OEMs have invested considerable resources in their respective technologies. To ask OEMs to redesign their existing hardware and software is not a viable option.

- Currently, fragmented information from diverse sources provided by separate web-based servers or stand-alone software provide little or no provision to import data into end-user fleet management software or enterprise system software.

- Asset managers have different needs for integration, and OEMs likely have varying opinions on what can be shared if compatibility issues were to be resolved. In order to look at the scope of the problem, an in-depth discussion of the data streams involved in modern fleet management is important. A common but by no means all-inclusive list of data streams would be as follows:
  - Location
  - Hour/mileage info
  - Run time versus idle time
  - Production or cycle time info
  - Machine health info
  - Availability info
  - Fuel consumption
  - PM compliance info
  - Emissions information

As the potential for technology evolves, other data streams that might be added could be:

- Work order and repair info
- Oil sampling database
- Parts management database
- Tire management database
- Cost summary and asset management history
- Fuel management database
- Regulatory compliance database and reporting
- Other telematics info
- Payroll info

- There is no standardized file format currently being used by the OEMs. For example, fuel usage might be coded “fuel consumption” in one program, “use of fuel” in another, and “fuel used” in yet another.

- There is no Electronic Data Interchange (EDI) format standard, either. Standard file formats are simple text files where all data is always located in the same position in the file. Widespread adoption of a standard file format would certainly help solve this problem. An example of file format standardization would be the U.S. banking industry’s adoption of the “NACHA” file format for ACH direct deposits (see www.nacha.org). A less desirable alternative is the release of APIs. Although helpful, this solution still necessitates more advanced IT resources to work with such data.

- Asset managers use a variety of fleet-management or enterprise software programs that are not often compatible with OEM software or difficult to integrate.

Recommendation
The cornerstone of AEMP is the Equipment Triangle, the relationship of manufacturer, dealer and end-user as a value-added proposition with each leg adding value to the other. This triangle approach certainly applies to addressing the issue facing the industry in this regard. AEMP’s hope is to provide the framework by identifying the problem and working with the manufacturers and vendors and their dealers to propose standards for ease of integration for the end-users benefit.

The purpose of the Chicago Technology Summit on August 6 and 7 is to openly discuss the challenges facing asset managers and conduct dialogue on ways this issue could be addressed by end users, the OEMs, and technology vendors in the spirit of AEMP’s Equipment Triangle philosophy. The desired outcome would be to develop some initial consensus on what might be done, how such a product might look, and how it might be developed and implemented. Armed with that information, the industry representatives could then go back to their respective organizations to determine interest and feasibility.
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Meeting Construction’s Communications Challenge

AEMP is taking a lead role in moving the industry toward a common communications protocol.

By G.C. Skipper, Contributing Editor

"What we have here is a failure to communicate."

That often-quoted line from the movie Cool Hand Luke perfectly describes the difficulty professional fleet managers have when trying to gather and interpret critical data about their mixed fleets.

"Virtually every fleet—whether private or public—is a mixed fleet," says AEMP Executive Director Stan Orr, CAE. "And most OEMs have developed software for their specific machines. However, that software is usually proprietary and generally doesn’t communicate with anything but the OEM’s own equipment. An asset manager who is properly managing his mixed fleet might have to look at several screens to monitor the equipment."

Complicating the issue further is the fact that end users have various fleet management enterprise systems and asset management software.

"These management programs don’t usually communicate with the OEM software, which makes tracking a mixed fleet very difficult," says Orr. "It’s a Catch-22. There are really good systems out there for tracking location, hours, and fuel consumption. But to collect the data from a mixed fleet, an asset manager almost has to manually transfer the data to an Excel spreadsheet or purchase third-party software. It’s very cumbersome."

Will McFadyen, president of McFadyen and Associates, a software development company with emphasis on the construction industry describes it this way: "If an end user has one system that’s implemented on 30 percent of the fleet and another system implemented on the remaining 70 percent of the fleet, the end user has to be able to unite the data because it’s needed by multiple systems at the contractor level. The problem most end users face is that it’s difficult to access all that information from the various systems as part of an automated process."

Not only is the information difficult to acquire, it’s difficult to use.

"Information derived from so many different sources is usually highly fragmented," says Dick Brannigan, CEM, AEMP President and equipment operations manager at John R. Jurgensen Co. "And it requires a considerable amount of work to turn it into something we can use."

As a result, the fleet manager is put at a disadvantage because the data is not in a usable format.

“Our current problem lies not in the volume of data available, but rather in the collection and integration of the information.”

Dick Brannigan, CEM, AEMP President and equipment operations manager at John R. Jurgensen Co.

Information needs

Even getting basic information can be difficult.

"Some manufacturers argue that to provide this type of information, they have to give you logarithms and the functions they use to calculate them," says Chris Ryan, CEM, Boh Bros. Construction. "But at the end of the day, we just want to know how many gallons of fuel were used. We really don’t care how the manufacturer calculates it. Just give us the information we need, whether it’s run time..."
hours, gallons of fuel used, or the location of the equipment.”

According to Ryan, Boh Bros. has tried four different manufacturers of fuel-distribution equipment to capture machine hours and gallons introduced into the machine.

“It’s been a struggle to find something that’s reliable and will do the job,” he says. “Right now, we capture the information manually.”

Although the construction industry is just now confronting the problem of a communications protocol, other industries—notably trucking—have been able to come to terms with the technical stumbling blocks.

“The trucking industry had a similar need, but took a different approach,” says Orr. “They were able to develop standards for a communications protocol because there aren’t as many manufacturers in trucking as there are in the construction business. They were also under federal mandate to do so.”

**Baby steps**

The trucking industry uses a common file format, which is a standardized format for data received from the bus, something that doesn’t currently apply to construction equipment.

“The construction industry has just begun to wrestle with this problem, and we have to take baby steps,” says McFadyen. “At some
Looking for Solutions

By Dick Brannigan, CEM

Today’s equipment managers, whether public or private, small or large, typically manage a mixed fleet involving dozens or even hundreds of makes and models. In doing so, we share a common problem: We are dealing with vast amounts of data that must be collected, analyzed and managed.

The success or failure of our fleet management programs depends on using this data to make timely decisions and take appropriate actions throughout the unit’s life cycle. A lack of facts at any level in the information stream often leads to immediate and severe consequences, either in terms of availability or cost.

It’s an absolute truth that “What we don’t know can hurt us.” And AEMP’s battle cry has long been: “If you can’t measure it, you can’t manage it.” Many of our association’s conferences and magazine features—whether focused on key issues, such as fuel management, emissions standards, or new technologies—have contained a common thread: the struggle to keep up with all the data and systems.

Manufacturers, dealers, telematics providers, and vendors have done marvels for our industry in providing the data we need to keep our fleets running—from on-board diagnostics to parts and service information—while their websites allow us access to previously unimagined resources.

Our current problem lies not in the volume of data available or access to it, but rather in the collection and integration of the information. We’ve evolved from “I wish I knew this” to “How can I collect, store, organize and manage all the data?” And now we ask: “How can I possibly integrate all these different systems and information streams?”

AEMP is working hard to get answers to this key question and has formed the Communications Protocol Task Force to help determine what can be done to facilitate the integration of this abundance of data into our fleet management software systems. The task force’s goal is to use an “Equipment Triangle” approach to discuss the possibilities and common needs of end users, manufacturers and dealers.

As with any journey of discovery, we’re not sure what lies ahead, but we’re hopeful that ease of integration becomes the norm and not the exception.

Dick Brannigan, CEM, is the equipment operations manager for John R. Jurgensen Co., headquartered in Cincinnati, Ohio. He is currently AEMP President and is Chairman of AEMP’s new Communications Protocol Task Force.
information from the different systems,” says McFadyen. “But the initial step is to provide the data in a programmable fashion, regardless of the format.”

Taking the lead

Because of the rapid rate of change in technology and because fleet managers require different information—all of it critical—to make wise business decisions, AEMP has taken a leadership role in resolving this issue.

“AEMP’s leadership believes it’s their responsibility to be the vanguard of the industry and to address important issues such as this as they arise,” says Orr. “As an association, it’s our responsibility to protect the interests of our members and advance the industry as a whole.”

According to Orr, this particular issue developed very quickly and gathered momentum last November when the association held its first asset management symposium. After 2½ days of discussing various topics, technology emerged as a critical issue for members.

“Technology permeated all the sessions,” he says. “We realized this was a burning issue for our members.”

That symposium was AEMP’s first step toward addressing the problem, and other steps are now being taken, such as issuing a communications protocol White Paper.

“We’re going to ask the manufacturers to spend a day talking with us about the obstacles and opportunities in developing a protocol,” says Orr. “AEMP is uniquely positioned to do this because we don’t have a financial interest in it.”

In addition, AEMP has created a special task force headed by Brannigan to delve into the subject and work toward a solution.

“The goal of the Communications Protocol Task Force is to simply start a dialog with manufacturers to determine how we’re going to proceed,” he says.

The task force is also charged with developing recommendations for the AEMP board and leadership on how the industry should pursue a solution to the issue.

According to Orr, AEMP will also use its Partnership for Growth through Construction Equipment as a vehicle to build a working relationship with OEMs and other technology providers.

“When we were at ConExpo-Con/Agg 2008 in March, we went to each manufacturer and talked with them about the issue,” he says. “We said, ‘Here is the situation; what do you think?’ Across the board, they recognized that this is a challenge that needs to be addressed, and they agreed to send representatives to our technology summit.”

Although it’s too early for a call to action by AEMP members, Orr says members should stay on top of the issue.

“Hopefully, we can learn from the successes of the trucking side and come up with standards that address our problems,” says Brannigan. “AEMP needs to make it happen since it looks like nobody else is going to.”

“I think manufacturers want to do what end users want,” says Ryan. “Up until this point, I think the difficulty has been determining what the common goal is. Now we’re starting to focus with a magnifying glass, and we’re going to start burning some holes in the paper.”

Orr acknowledges that construction industry OEMs have invested millions of dollars to develop software.

“When manufacturers designed their systems, they wanted to improve their products,” he says. “Now they need to improve the profitability potential for construction companies, regardless of fleet size or makeup, by giving end users a better handle on their biggest asset—their equipment. That’s the bottom line.”
A Best-Practices Approach to Recruiting

By G.C. Skipper, Contributing Editor

Kokosing Construction, AEMP’s 2008 private-fleet Fleet Masters Award winner, has developed the company’s recruiting and hiring program into a best practice by using a formalized, thoughtful and consistent approach.

Barth Burgett, vice president of equipment and support for the Ohio-based firm, was one of the first company executives to identify this potential stumbling block to the company’s future growth.

“One day, I saw a valued employee and suddenly realized he was going to be retiring soon,” says Burgett. “Then I saw another and another. The more I looked into it the more it became apparent this could grow into a major problem.”

Burgett alerted top management.

“We were given the go-ahead to develop a comprehensive hiring program, and it wasn’t long before company executives could see how important our new recruiting procedures were going to be for the company,” he says.

Today, 10 years after the program was initiated, its importance to the company is recognized by top management.

“Recently, one of the vice presidents said, ‘Don’t even think about stopping the program,’” says Burgett.

Best practices

The first step was to designate a part-time recruiter to work with high schools, community colleges and technical schools in the area.

“Our recruiter would make an appointment to go to a particular school and several of us would deliver a presentation to the students,” says Burgett. “We used a general presentation to tell them about the types of opportunities that were available in the construction industry and then cover what careers are available at Kokosing specifically. Then we’d answer their questions. Those visits were so successful, we’re still doing it.”

If any of the students express interest in learning more about a career in construction, the recruiter arranges for the students to come to Kokosing for interviews.

“We schedule interviews in specific areas—dielectric technician, equipment operator, carpentry, electrical, labor, welding, masonry, and paint and body.” says Burgett. “We break everything out into trades.”

Department managers participate in the interviews.

“Managers conduct the initial interview and bring the student in to see where he or she will be working,” says Burgett. “The entire process from interview to placement takes about eight weeks. We give them plenty of time to think about it.”

Those students that look particularly promising are offered part-time and/or summer positions at the company.

“In the summer, we add more candidates because we need more help,” he says. “That work could be something as simple as removing nails from lumber, unloading trucks, or cleaning up sites.”

The company has also developed beneficial relationships with several tech-
“Students that look particularly promising are offered part-time or summer positions at Kokosing.”
Barth Burgett, vice president of equipment and support, Kokosing Construction

The recruiting, hiring and training processes are time-consuming, but, according to Burgett, they are very successful.

“You have to find students with the right work ethics and a desire to learn,” he says. “We try to be very selective. We want the best students we can find.”

Once Kokosing identifies the individuals with the greatest potential, the company concentrates on getting them into the appropriate trade.

“Some stay here in the forming shop as carpenters or in the welding shop,” he says. “Others go out into the field to become leaders in the company.”

As a heavy industrial and highway construction company with a fleet of about 1,500 units, there is ample room for career development.

“We do our own maintenance, our own carpentry work and our own concrete forming work,” says Burgett. “As we see it, our responsibility is to develop new employees who will help grow the company and who can grow with the company.”

To date, the program has an impressive 60 percent to 70 percent success rate.

Burgett suggests these critical elements to a successful recruiting/hiring program:

- Whether filling the simple jobs or scouting relentlessly to find the increasingly elusive diesel technician or equipment operator, use a formalized plan.
- Secure the commitment of top management to the plan and assure they’ll make the necessary investments in it.
- Develop career plan to offer candidates.
- Commit to helping recruits, once hired, to acquire the skills they need to become key employees within the company.

### Safety Training Passport

Anyone old enough to remember Andy Granatelli probably knows that STP was, and still is, the moniker for an oil additive that supposedly makes slick oil slicker.

At Kokosing Construction, Inc., however, STP has an entirely different meaning. It stands for Safety Training Passport, a program created by Ohio trade unions and the Ohio Contractors Association, and every union employee has to have one if they work for Kokosing.

Earning an STP requires 16 hours of safety training provided through the union’s training centers. Each year, employees submit applications for educational training funds available from the Operating Engineers. That money can be used for specific training in the applicant’s chosen field, whether it’s in equipment maintenance, crane operation or hydraulics and electrical system troubleshooting. The union pays the fees for any approved schooling.
How to Develop a Training Program

Large or small, every construction company should be investing in its future with an employee training program.

By G.C. Skipper, Contributing Editor

If employee training isn’t high on your priority list, it may be time to reconsider.

Employee training decreases turnover by helping to keep employees interested in their jobs and involved in the company. Training cuts costs by helping to develop a safety-conscious staff, which can cut down on accidents. It improves productivity by producing employees that are more efficient. And for technicians, training is necessary just to keep up with the rapid advances in technology and machine design.

A formal approach

Sam Houston, CEM, and division chief of fleet maintenance for the City of Jacksonville (Fla) is a strong advocate of using formal training programs.

“Formalized training should include both classroom and hands-on sessions,” he says. “That’s one way to make sure technicians know how to do the work correctly and in a timely fashion.”

To develop a formalized program for your company, take a needs survey and an aptitude assessment of each technician.

“You must find out what each individual’s skill level is,” says Houston. “That tells you where you need to ramp up your efforts. Never train just to train. Train in the areas where technicians need the most help. A formal training program helps do that.”

Erle Potter, CEM and licensed professional engineer with the Virginia Department of Transportation (VDOT) in Richmond, says once his training team completes its needs assessments, it develops a schedule of quarterly meetings to review those needs and determine the courses that are necessary to fill the need.

“The second step is to prepare a detailed curriculum and course descriptions,” he says. “You can’t just go to a vendor and say you want a course on ABC. He has to know what he’s going to teach and you have to make sure that everything is included.”

Once the program is under way, Potter recommends an assessment to see how well the employees are doing in the course.

“If, for example, everyone scores a perfect 100 on every test, or if most of the class fails a specific test, there’s something wrong,” he says.

You’ll also want to have the students evaluate the course.

“Instructors are not necessarily creative,” says Potter. “Student evaluations allow you to gauge the ability of the instructor to teach the materials. If necessary, you can recommend areas of improvement or even replace the instructor. You need to regularly evaluate the program and fine-tune it.”

This type of program has worked well for VDOT since it was put in place in 1995.

“When we started, we worked with a community college that offered courses we wanted to send our employees to,” he says. “It didn’t work very well. The problem was that they just presented the same courses over and over again. And the courses were typically more oriented toward automotive and truck maintenance. They didn’t cover the work we do.”

To improve the program, an
The Official Publication of the Association of Equipment Management Professionals

advisory board was formed with representatives from each of the nine districts. The group was made up of technicians and shop supervisors. Its job was to figure out what training was needed, how it could be done, and what would be required to start the program.

“The board called itself TRUCKS (Training Rewards Us with Compensation, Knowledge and Skills),” says Potter. “We started from scratch, reviewing what was good and what was bad about our current training program.”

Finally, the group recommended VDOT establish a three-tier approach, based on the experience level of the technician, with three categories of instruction. Core skills were broken into entry, intermediate, and advanced levels—and a variety of resources were researched to provide the different levels of training.

Entry-level skills training was done by local community colleges that offered basic automotive technology courses. Intermediate training was provided by original equipment manufacturers. Advanced training, which called for certification of technicians, was provided by the certifying agency.

“For example, the Virginia State Inspection certification was taught by the Virginia State Police,” says Potter. “The state police developed the program and taught it at our locations. They also conducted the test and issued the certifications.”

Other advanced training and certifications were handled by organizations such as the Fluid Power Society, experts in hydraulics, and a company that’s responsible for training and certifying technicians to meet standards set by the American Welding Society.

“Through our Human Resources Division, we were able to work with an organization called ManTech Systems Engineering,” says Potter. “ManTech subcontracts most of the training to other organizations, but it maintains all the records, including what course the technician took and what his scores were.

Many of the classes require the employee to pass prerequisite courses. And although the lengths of courses vary, most are three days.

“In a given district, we might have eight people training three days a month,” says Potter. “There are not that many people in training at one time.”

Before taking a class, technicians are required to take pre-tests.

“Pre-tests and post-tests allow us to know what the technician knew before he took the course and how much he learned from taking it,” says Potter.

These training programs have been so successful that VDOT has been recognized by the National Institute for Automotive Service Excellence (ASE) for having the largest number of recognized ASE Blue Seal of Excellence shops of any governmental entity. The North American Transportation Management Institute (NATMI) has also recognized VDOT for having the second highest number of NATMI-certified shop supervisors of any fleet, public or private, in North America.
Training for the smaller company

With approximately 400 technicians throughout VDOT, Potter doesn’t have to worry about shop production when he takes technicians off the floor for training, but that’s not usually the case with smaller companies.

Jay Dee Sale, director of parts and service for Red Mountain Machinery, with facilities in Chandler, Ariz.; Las Vegas, Nev.; and Riverside, Calif., says one thing he ran into in setting up a training program was finding the time for training.

"When you’re working as hard as you can and you’re short of people, it’s difficult to take technicians off the floor and send them to training," he says.

Sale tried scheduling the classes on the weekends, but technicians didn’t want to give up their personal time to attend.

“They wanted to be trained on company time, but that meant we’d lose all our service capabilities during critical business hours,” he says. “That wasn’t going to work.”

Then Sale tried dividing the training so only one-third of the technicians would be in training at any one time.

“Taking a third of the technicians off the floor might not be an issue for larger companies, but we don’t have hundreds of technicians to rotate,” says Sale. “Even if you take only a handful of people off the floor, it impacts our shop productivity. And, of course, no matter which training day we selected, that was the day we received an overload of service calls.”

A formal training program didn’t work for Red Mountain, but Sale did find a solution.

“We use an on-the-job approach,” he says. “When one of the technicians is having a problem, our training instructor works with him. The trainer is not there to do the work for the guy. He’s there to train him on the specifics of the problem.”

While Sale admits this training method is not ideal, it has improved shop productivity.

“If I have a technician that’s struggling, I put the trainer with him and the technician learns first-hand how to deal with the
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“When you’re working as hard as you can and you’re short of people, it’s difficult to take technicians off the floor and send them to training.”

Jay Dee Sale, director of parts and service, Red Mountain Machinery

problem,” he says. “We’re really seeing it make a difference in efficiency. In addition to the trainer’s one-on-one training responsibilities, he also oversees all the work done in the shop.”

**Counting the cost**

Whatever training approach works best for your company—formalized, one-on-one or a home-grown variety—you’ll likely have to develop a budget to cover it. How companies arrive at those budgets depends largely on the organization.

Some companies take a direct approach. For example, Houston budgets $15,000 annually for training.

“You have to put together a training program that carries you for several years, and it will almost certainly have to be updated,” he says. “As far as the specific budget you’ll need—you have to take into account how much you’ll be paying for outside schooling, how much you can do in-house, and how much can be done by OEMs.”

Potter says there are a number of things to consider.

“One way to budget is to look at your needs and see what the cost of those courses will be,” he says. “Can you squeeze it all into one year? After all, the reason we have technicians is to turn wrenches, not have them in class all the time. But, by the same token, you have to keep them up to date on technology, because if they’re not trained, they can’t do the work.”

Another problem facing equipment professionals when it comes time to train employees is motivation.

“Motivation is a tough subject,” says Houston. “Money means a lot to a lot of people but another way to motivate people is to get them involved so they feel they are part of a team. You have to know what makes people tick. You have to show that you care about them, their families, and what they do. You have to put them on the back every once in a while and give them a raise when you can.”

The Virginia Department of Transportation’s Bruce Nelson tries hands-on training to troubleshoot this vehicle.

**Foundation Funds Technician Training**

A new name has been added to the “endangered species” list: trained technicians that work on off-road equipment.

According to Robert Decker, chairman of the AEMP Foundation and equipment division manager at Ace Asphalt in Phoenix, if no one pays attention to the problem, by the year 2012, there will be a shortage of 80,000 technicians across the United States in the equipment industry.

“It’s a major concern for all of us right now—manufacturers, dealers and end-users,” says Decker. “Where are we going to find future technicians? We have to “feed” the system and get more people interested.”

Feeding the system is one of the objectives of the Foundation.

“We’re working to help the entire industry,” says Decker. “Our main goal is to provide scholarships to attract as many students as we can—young or old—so they can enroll in two- or four-year colleges.”

The Foundation is also working to raise awareness of the technician shortages with guidance counselors, educators, and others.

“There are good paying jobs out there, good work, and we want to let people know about them,” says Decker. “That’s the biggest problem we have right now. We’ve sent information to more than 5,000 guidance counselors throughout the United States. In addition to the applications and brochures that were sent to them, we have on-line applications on our website at www.AEMP.org.”

The Foundation is also working on the problem with industry organizations, including the Association of Equipment Manufacturers (AEM) and Associated Equipment Distributors (AED).

“To qualify for scholarships, candidates fill out an application and submit it,” says Decker. “We look at work history, grade-point average, and so forth. It’s like any application students would fill out for college scholarships.”
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When it comes to wages, VDOT can’t compete with the private sector, but technicians stay with VDOT. One of the reasons is training. “Training gives them the confidence that, if something were to happen, they could take their certifications with them and find a job somewhere else,” says Potter.

Another major factor is recognition. “We bring in the District Technician of the Year from each district for an awards ceremony and present certificates,” says Potter. “Their pictures are run in a monthly newsletter distributed by VDOT, and their names are sent to AEMP as nominations for the National Technician of the Year Award. We’ve had several winners.”

Don’t Limit Training to Technicians

So much attention has been focused on technician training lately that fleet owners could well overlook how important it is to train other employees. In addition to technicians, AEMP has identified three groups of employees that should be considered in establishing a training program:

Management and supervisors
Even well-trained technicians won’t produce the cost-effectiveness and efficiency a company should expect from an aggressive training program. Those results require professional training of managers and supervisors in subjects that include workforce management, motivation and morale; communications; productivity; customer relations; conflict resolution; and the principles of discipline. Local colleges and training organizations are good resources for this type of training.

Administrative and support staff
Support personnel require training since they have a direct impact on morale. Front-office personnel many times are the first encounter a customer has with a company. They should be trained in phone etiquette, customer relations, and conflict resolution. Other training might include warranties and writing specifications.

Fleet managers
Fleet managers may have well-trained staffs, but they also need training to function at peak performance. AEMP compares a fleet manager with the CEO of a large corporation. It requires acute managerial skills and a lot of common sense. A fleet manager must have a sound working knowledge of all facets of the organization and should constantly monitor return on investment, control expenditures, analyze repair costs, and keep the budget on track.
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Despite the fact that extended life coolants (ELC) have been on the market since 1985—and offer an abundance of advantages for today’s engines—they’re still largely misunderstood by many fleet managers. In fact, ELC chemistry and less-structured cooling-system maintenance requirements are contributing to increased coolant problems when the exact opposite should be true.

“Maintenance technicians are used to just topping off coolant,” says Elizabeth Nelson, coolant program manager for Polaris Laboratories. “Today, they really need to pay more attention to what they’re doing.”

When technicians mix different coolant formulations—something Nelson says they’re seeing increasingly more of in the samples they test—they’re asking for trouble. For example, when you mix conventional coolants with organic acid technology—a basic part of ELC—chemical reactions can affect the inhibitor package.

“An ELC formulation is different from conventional coolant,” says Nelson. “Carboxylic acids in ELC are designed to keep the metal clean. Clean metal gives you better heat transfer. If you mix ELC with more than 20 percent of another type of coolant, you dilute the carboxylic acid and it can’t provide the protection it should. That can result in corrosion and pitting.”

In addition, if ELC is topped off with conventional coolant, it knocks the silicates out of solution, which can plug the cooling system passages. If passages are dammed up, the coolant starts to break down and form degradation acids.

“You can mix them,” says Richard Gapinski, driveline and

**Keep Cool With ELCs**

Longer drain intervals and improved performance are just a few of the benefits of extended life coolants.

By G.C. Skipper, Contributing Editor

When using extended life coolant, it is critical that you top off the coolant level, as shown here, with the proper ELC coolant additive. OEMs do not recommend mixing ELC with conventional coolants. Photo courtesy of Shell Rotella
ancillary technical manager for Castrol Heavy Duty Lubricants. “But we don’t recommend it. When you mix the different lubricants, you’re diluting some of the advantages of ELC.”

Steve Overdeck, vice president of sales and operation for Kost USA, says 40 percent to 60 percent of engine failures are coolant-related. “What that means is maintenance technicians are using an improper coolant or topping coolant off with the wrong coolant,” he says. “It can also happen if they’re not using proper maintenance.”

Improper water use can also lead to failure, says Overdeck. Deionized water contains no hardness to scale inside the engine where hot spots occur.

A better coolant

ELC was developed to meet customer demands for extended drain intervals.

“Users were looking for a way to eliminate the old problem of silicate reacting with metals to precipitate out sediment” says Gapinski. “That prompted the development of organic acid coolant.”

Development was also driven by OEMs needs for a coolant that would handle higher engine temperatures. “Manufacturers wanted a nitrite-free formulation,” says Overdeck. “Nitrite in conventional coolants is used to protect liners against pitting. Diesel-powered engines have piston sleeves that are cooled and protected by the coolant that surrounds the casings. The coolant forms a ‘sacrificial’ coating on the outside of the piston liners. As pistons churn up and down, they vibrate. The vibration forms bubbles and air pockets that collapse against the cylinder liner at very high psi. The coating created by nitrite deflects that bubble attack from the liners.”

The advantages to ELC are many. Basically, it helps construction equipment fleets perform better and reduces downtime, says Carmen Ulabarro, market development specialist at Chevron Global Products. It:
- Lasts longer
- Reduces cooling system maintenance costs
- Improves heat transfer
- Improves water pump life
- Offers complete protection for all cooling system components, including aluminum.

Extended drain intervals are actually built in to ELC’s chemistry. “ELC coats only those areas in the engine that are hot spots,” says Overdeck. “Conventional coolants basically coat everything they come into contact with. That’s why ELC lasts longer. When conventional coolants coat everything, they create a wall that doesn’t allow cooling to be as efficient.”

And there’s another advantage to ELC: According to the experts, ELC is more environmentally friendly than conventional coolants. If ELC should leak into the environment or if it isn’t disposed of properly, the carboxylic acid will biodegrade.

“Goof-proof” maintenance

The only disadvantages to ELC are based on the fact that end users don’t know how to maintain it. “Any fleet can use and benefit from ELC,” says Nelson. “Just put it in the engine and let it run over an extended period of time without adding other chemicals.”

While it’s not required, Dan Arcy, technical marketing manager at Shell Lubricants, recommends sampling coolant regularly. “Take a sample of coolant every month when you service diesel-powered vehicles and check the sample for clarity,” he says. “Put it in a clear jar and hold it up to the light. If the coolant is clear and bright, you’re okay. There shouldn’t be any particles floating in it.”

Arcy also suggests checking the
Delo ELC-NF

Chevron’s nitrite-free Delo Extended Life Coolant/Antifreeze (DELO ELC-NF) can be used for both on- and off-road vehicles, requiring a nitrite-free OAT formulation. The extended life coolant is capable of lasting to 600,000 miles or 12,000 hours with no chemical extender needed, according to Chevron. It provides corrosion protection; low electrical conductivity; protection against pitting, corrosion and erosion; and improved water pump life. Chevron also offers the product under its Texaco brand.

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Rotella ELC

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with a 50/50 coolant mixture. The coolant will boil at 225 degrees F. You add 2.7 degrees for every pound of pressure you put on the cooling system; a 14-pound pressure cap raises the boiling point to 263 degrees F. Many of today’s engines run at 228 to 250 degrees F. If you lose some of that pressure, the engine will boil internally, which will corrode metal and break down the ethylene glycol to form degradation acids.”

Engine manufacturers are turning up the heat.

“By 2010, the typical pressure cap will be 23 pounds,” says Nelson. “That tells me temperatures are going up. We’re asking a lot of the coolant. With the margins becoming tighter—maintenance has to be tighter, too.”

Calculating the cost

While ELC is more expensive to purchase than conventional coolants, it’s less expensive to maintain, largely because it doesn’t require supplemental coolant additives to maintain efficiency.

To convert from conventional coolant to ELC, drain the entire cooling system, flush it, and then add ELC. As with conventional coolant, ELC should be diluted 50/50 with water,” says Gapinski. “It doesn’t have to be a precise mixture, but it should be close.”

Fleets that don’t want to drain the systems of an entire fleet can use a conversion fluid.

“Converters can be added to the cooling system to gradually convert to ELC,” says Gapinski.

“The converter has an extended life additive in it that swamps the old coolant with the new technology.”

Using a conversion fluid requires some basic testing.

“The key here is to watch the pH level,” she says. “It should be in the 9.0 to 8.0 range. Test the pH first. If it’s in an acceptable range, drain a gallon of coolant, put in a gallon of conversion fluid, and test the pH again. If it’s holding, send a sample to a lab for confirmation.”

The benefits of ELC are many but the message is clear: Carelessness won’t cut it with ELC. Still, if you follow OEM specifications, you can extend drain intervals, minimize maintenance, and keep your engines cool and protected—with ELC.

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