

Fire Apparatus

The Reference Guide To Purchasing Fire Service Tools & Equipment

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Focus On Foam

Foam Should Be Part of Every Department's Operations

By Bill Ballantyne

If using Class A foam is not part of your standard operating guidelines, here's a strong case for you to move it to the top of your list.

To compete today businesses have to react quickly to change. The fire service is no different.

Within one week, a team of business consultants I was recently with revamped a company to reduce lead time from days to hours, reduce inventory by 90 percent, helped reduce defects and errors by 50 percent, boosted productivity by

50 percent, reduced floor space requirements 25 percent and improved customer service to 99 percent.

Businesses around the world are experiencing similar improvements through the process built on the Toyota Production Model called a Kaizen Event. The term means ongoing continuous improvement.

Part of the process of achieving such startling change is removing the limits on the current way we look at production, sales and service.

Can we achieve a similar magnitude

of improvement in the fire service? Absolutely!

For starters, let's look at how to reduce fire losses. Several years ago, the Los Angeles Fire Department conducted a series of burns in an instrumented building to compare the performance of water, Class A foam and Compressed Air Foam. These are often referred to as the Palmdale Tests.

Chart 1 summarizes the time to knockdown for the three extinguishing agents. The water attack required 50 seconds to achieve knockdown. The aspirated Class A attack required only

half that time, providing a 50 percent improvement. The CAFS attack took just 11 seconds. That is a 78 percent improvement over the water attack.

Chart 2 shows the total gallons required for knockdown with all three extinguishing approaches. Here we see a similar pattern. Class A foam provided a 40 percent improvement over plain water while CAFS showed a 79 percent improvement.

Class A fuels account for over 97 percent

Hackney Constructs Rescues With Time-Tested Techniques

By Ed Ballam

WASHINGTON, N.C. — Only the uninformed would describe apparatus built by Hackney Emergency Vehicles as glorified beverage trucks. There is a lot more to Hackney rescue vehicles than meets the eye.

Sure, Hackney's roots are deep in the "beverage truck" business and they con-

tinue to make thousands of beverage bodies annually. As a result, the emergency vehicle division has the buying power of a large company and the choice of the best and most qualified employees from a payroll of approximately 1,000 nationwide to build only rescue apparatus.

Workers at the Washington, N.C., plant are pleased to point out the time-tested features that have translated from the beverage industry to the fire service. After all, Hackney has been building truck and beverage bodies since 1946 and they've learned a thing or two about vehicle construction in the past half century.

For instance, Hackney's exclusive

dropped-pinch-frame construction, which accommodates lower and deeper

compartments, is a page taken straight from the beverage body industry. Patented roll-up doors that endure the heavy daily slamming of delivery drivers create "bulletproof" doors that can withstand anything the fire service dishes out.

"We build one of the premier rescue trucks in the country," says Ed Smith, Hackney Emergency Vehicles' director of sales and marketing, who also manages the division. "We are one of the big guys in the rescue business in America and that's why we call ourselves the rescue leader."

Smith has the evidence to back up his boast. Hackney has a list of more than



Foam Use 4

Pyrocool Effective In Extinguishing Trade Center Fires

MONROE, Va. - On Sept. 30, 2001, almost three weeks after the collapse of the World Trade Center, members of the FDNY were still concerned about fires that burned deep below the 17 acres of rubble of what was once the North and South Towers.

In an effort to extinguish, or at least slow the spread of, the super-heated areas, FDNY Incident Command turned to a multi-purpose fire extinguishing and cooling agent, Pyrocool FEF, which had been used successfully by FDNY Hazmat 1 to extinguish several difficult fires in New York City.

FDNY turned to Pyrocool for help extinguishing fires at the World Trade Center

Pyrocool, which is mixed with water at 0.4 percent, drains rapidly and is extremely absorbent, characteristics that would be essential in extinguishing such deep-seated fires, according to the manufacturer.

On that September morning 2,000 gallons of Pyrocool FEF were delivered to the Liberty Sector Command Post at Liberty and West Streets, adjacent to the west side of what was the North Tower and the company was set to put its product to one of its greatest challenges to date.

Staging operations were coordinated by WTC Incident Command and FDNY

Research and Development (R&D) applied Pyrocool to two areas of immediate concern - the debris field on the west side of the North Tower and the backside of the debris field of Federal Building Seven.

Fully Extinguished

For the Building Seven operation, a 75-foot ladder tower (Truck Company 133-Brooklyn) was used, together with a 500 gpm Akron eductor. Foam was applied, at approximately 500 gpm, for two hours to the middle section of Building Seven, after which a portable infrared camera revealed that the area had been fully extinguished. In fact, no hot spots were found in the area where Pyrocool had been applied.

The North Tower fire operations proved to be logistically more complex, inasmuch as it had to be conducted so as not to hinder ongoing rescue efforts.

The Seat Of The Fire

An Akron Apollo 500 gpm multiversal was placed 150 feet up onto the debris field with the water stream directed into a void area nearby. Immediately, an enormous column of vapor began pouring from numerous areas throughout the debris field. This was a clear indication that Pyrocool was draining deep into the debris pile and was reaching the seat of the fire.

Lt. Mike Stein and Lt. Larry Monachelli of FDNY R&D coordinated the foam application with assistance

from Mike Hagar, Chief of Fire Operations for Pyrocool Technologies.

"It was obvious when we applied the Pyrocool that we achieved a rapid reduction in the temperature of the exposed steel," said Lt. Stein. "Pyrocool was brought in for a specific purpose and it performed exactly as we expected. It changed the entire thermal image."

Week-Long Application

The application of Pyrocool continued throughout the week at various locations, including the front section of the Federal Building and a lengthy attack on the debris pile at the South Tower which lasted over 24 hours.

The success of Pyrocool fire operation was due, in large measure, to the professionalism of FDNY WTC Incident Command and to FDNY personnel on site, who directed the operations with dignity and efficiency under the most demanding circumstances, according to the manufacturer.

The level of destruction, which covers an area of approximately 17 acres, cannot be accurately described; it had to be seen to be fully comprehended.

Each floor of the World Trade Center

towers comprised an area of one acre. All 220 floors were compressed into an angulated mass of twisted and charred 30-ton I beams.

It was beneath these enormous debris piles, and particularly in the sub levels beneath the towers, that the fires continued to burn. As debris removal continued, thermal-imaging scans taken by Drug Enforcement Agency (DEA) helicopters revealed numerous super-heated areas below the debris piles.

FDNY Incident Command grew increasingly concerned that several of these hot-spot areas were spreading and that they posed an imminent danger to several large Freon tanks that lay buried beneath hundreds of feet of smoldering debris.

Pyrocool Worked

That's when the call for Pyrocool was made and it worked.

At the conclusion of the operation Deputy Chief Charles R. Blaich, Incident Command Chief of Logistics, noted, after viewing the thermal images, "Where the Pyrocool was applied the fires went out."

For more information about Pyrocool circle reader service card #107.



In addition to the normal equipment one might find on an ambulance, the Big Moose Ambulance Company has also outfitted its new Hi-Rail vehicle with a



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