

# TOO MUCH ... is not enough

**Industrial firefighting ... not simply a matter of overwhelming force.**



Industrial fires are often very large, explosive, awe inspiring — even terrifying events. Human nature usually “manhandles” an event of this type from the very outset. Fears may alter a man’s actions, stress may cloud one’s judgment, and pressure from outside sources such as environmental agencies, local communities, media, or corporate management may burden decision making to the point of error. Under these circumstances it is sometimes challenging for responders to control their emotions and to rationalize in a moment of life threatening danger.

However, deliberate, rational thinking will be the great-

est asset that will lead to safely, effectively — even swiftly — overcoming any catastrophic event.

fires in their lifetime (if any).  
An industrial fire is not a cookie cutter event. I have never been to a fire that was identical to another. There are common characteristics of these events, however, surprises always play into the response. These responses never follow a predetermined list of actions; if you do steps 1 through 5 the fires will go out ... this simply does not happen.

However, when you survive 26 years of major events around the world including well head explosions as fol-



**With flame collapse in under 14 minutes, Williams Fire & Hazard Control was able to quickly adapt tactics to overcome hidden obstructions to foam flows inside the tank. The Rooster tail of foam seen below showers foam directly from above to fill shadowed areas inside the tank.**



It is incumbent upon incident commanders to take control of a fire scene immediately to properly assess the characteristics of a fire, to design the correct response to that fire, and to efficiently apply all available resources while maximizing their effectiveness and protecting their supply. This methodical and deliberate application of skills and resources will be the single most important component of ANY fire response.

Williams Fire & Hazard Control draws on a history of over 175 successful responses. We have seen so many fires that we have come to understand them — perhaps moreso than most firefighters who will see only one or two

lowed the first Gulf War, world record 270 foot tank fires, massive vessel fires at sea, multiple tank fires that consume an entire facility ... these experiences instill in you the ability to recognize and understand how a fire is working — and more importantly — how to kill it.

Recently Williams Fire & Hazard Control was called in response to a 140 foot internal floating roof tank fire ignited by lightning.

Local media — which was familiar with these type of industrial events from past experience — kept a constant vigil with live aerial shots of the fire and minute by minute updates to the surrounding areas affected by the towering smoke plume.

Local commanders actually did an excellent job of maintaining their composure in the face of what was a very large fire. Their initial focus was to marshal the manpower of surrounding municipal departments and task them efficiently with exposure control and primary response support activities.

When we arrived the fire was immense. It looked and behaved like a full surface fire without obstruction due to the very active flame characteristic we were seeing. Once we began our attack, however, it quickly became apparent to me that we were dealing with a different type of animal. I saw behavior that told me our foam application was not making a normal run across the surface within the tank due to one or more obstructions inside. ThunderStorm® under proper application is a very effective, fast knock down agent for a flammable liquid fire – even one of this magnitude.

Though our initial attack had severely weakened the fire at this point – we saw flame collapse 14 minutes into our application – our observations of the fire's behavior indicated obstructions within the tank. Peaks and/or pipes that were above the flammable liquid surface were blocking the foam's ability to communicate across the entire surface.

Once flame collapse revealed the particular terrain of the fire within this tank, we were able to identify new tactical requirements, adapt to those requirements, and execute an attack to overcome what we were seeing in the fire.

At this point we modified our approach to a “Teasing Method” – in this case a high tease. This tactic moves our foam stream nearly vertical to a point of lobbing our foam high above the tank resulting in a “Rooster Tail” which rains the foam application straight downward into the tank and smothering all surface areas inside. This application method overcomes obstructions and will allow our foam application to disperse and drop foam into hidden areas. Rather than a 6 o'clock ground position attack this tactic essentially creates a full vertical attack from directly above the tank – which is what allowed us to kill the fire.

A lot of folks believe that what we do is throw a bunch of foam at a fire and hope it goes out.

What is very interesting about this event is that once we had water pressure established, and monitors set in place we began our foam attack as foam was still being loaded into our staging area. (Figure 1). Though plenty of foam was being delivered for the extinguishment and for post extinguishment activities, as stated earlier, we accomplished flame collapse in under 14 minutes with under 3 totes of foam!

The most important component of firefighting was revealed by this fire. You can throw all the foam and water you can find at a fire and still not put it out. In fact this has been done many times with flammable and combustible



**This “High-Tease” method is a direct tactical response to what was observed in the fire’s behavior.**

liquid fires, no less. Yes, foam is the extinguishing agent, and some are better than others – ThunderStorm® has been proven the best. But, putting the foam at the right place in the right way is what puts the fire out. This is only accomplished by firefighters who are patient enough to thoroughly assess the fire's characteristics – throughout the event – and then engage the proper methods to overcome what the fire is doing.

Now, a success to Williams Fire & Hazard Control is extinguishment that saves product and infrastructure exceeding the cost of the response. In this case we saved 90,000 barrels = 3,780,000 gallons of gasoline. Price levels at the time of this event equated to \$10,206,000.00 of product saved! We also were able to save two adjacent tanks that were steaming violently and were near their flash point well.

Remember, taking the time to rationally assess the characteristics of the fire – to keep your wits about you when everyone around you is losing their mind – this ability resulted in an outstanding result in the face of a very large fire that had a serious surprise hidden beneath the surface. In under two hours of our arrival we were able to save upwards of 10 million dollars in product, and who knows how much with regard to the adjacent tanks when you consider the hard cost of the tanks and the products levels in them.

This experience proved invaluable in aiding the response to a similar event in Mexico only two weeks later.

A cone roof tank with an internal floater had ignited under a lightning strike. In this event massive amounts of water and foam were thrown at the fire very early and just when they thought they had it under control ... the roof blew off the tank! This led to nearly an identical situation to what we saw in Oklahoma – obstructions in the tank from the sunken floating pan impeded the normal ground assault of foam application.

Patience, knowledge, tactical accuracy ... these are the keys to success as an industrial firefighter.