

## Case Study

### Corrective Action: Fire Extinguisher Training

After an incident that occurred on site of a burning trash can and the subsequent root cause analysis completed, one area identified was the competency of our on-site personnel with a fire extinguisher.

With this knowledge, training was needed to ensure that our on-site personnel were confident and competent on the proper use of a fire extinguisher.

After researching the present six hour Fire Extinguisher training courses provided externally, it was determined that the present training was not meeting our needs and expectations.

The duration of the course proved to be far too long, the subject matter of the course was far too in-depth to support our goal of determining competency in the use of fire extinguishers and the costs associated with the competency training needed to be mitigated.

The corrective action that we looked at stated that there was going to be 380 personnel that needed to be involved in this corrective action. A total of 2280 workable hours needed to be utilized for this one part of the corrective action. On average, the cost associated to a contractor is \$115/hour. The grand total for this would be \$262,200.<sup>00</sup> for this six-hour fire extinguisher training and this is just simply the workable hours that they're going to need.

The other financial consideration is the cost of the course for 380 people at approximately \$180 each for the six hour fire extinguisher course. For a total equal to \$64,000.<sup>00</sup> to get 380 people certified just in course fees.

On top of that, we have to look at the cost in refilling and charging spent for the fire extinguishers because once they were used in training they needed to get refilled and recertified for the field.

Basically one fire extinguisher would be used for two training events that would be a total of one hundred ninety refurbished fire extinguishers to complete the course for another \$9,000.00 of cost on top of that for the grand total of \$340,600.<sup>00</sup> to implement this one corrective action.

As soon as I started looking at the cost, I totally understood where my stakeholders were coming from. This was a large financial burden for a very simple corrective action.

Before investing and moving forward with this corrective action I attended the fire extinguisher course to see what the return on investment was going to be. The course did not truly measure competency and my assessment of the students in the class was that the surmountable goal was to simply stay awake during the lecture.

The hardest parts about the course were; the large amount of filler, very dry in material, outdated training videos and subject matter that was truly not needed to determine competency for the use of a fire extinguisher.

It did not need to be that long and the filler had no value towards deeming competency with the fire extinguisher.

A few examples of the filler would include:

We learned about the history of a fire extinguisher, that we actually started with a chemical solution in glass jars that would throw into fires.

We learned the history of the fire department and various fire events that spurred on the creation of our modern day fire fighting brigades.

A large amount of time was actually spent on the classifications of different fire extinguishers and recognizing them so that you can utilize the right extinguisher for the right type of fire.

And all of these are filler including the classifications of the fire extinguisher because if you think about it, every industrial site, especially in an oil and gas situation, has professionals that come on-site to allocate specific fire extinguishers for specific areas.

So if there is a fire in that area, the right fire extinguishers are in place. If we need to educate our personnel on the classifications of fire extinguishers, we have to ask ourselves what are you trying to deem them competent for?

We're deeming them competent for the use of the fire extinguisher.

If we need them to know classifications and rules and regulations maybe at that point we have to ask ourselves, "are we trying to deem them confident as fire technicians for the fire safety program on top of all this?"

I was actually quite shocked when I took the course because they lit a large pan that contained oil and diesel on fire and had us go about putting the fire out with the fire extinguisher. I found it interesting that we would voluntarily introduce a fire hazard into a training scenario to teach people how to properly deal with a fire hazard.

I started to formulate in my mind how long it would take to get the permits in place and what kind of resources we would need to have in place to do this training on-site. Considering we are an oil and gas refinery, lighting a fire inside our facility is less desirable.

There was also a huge amount of environmental implications. We're going to be discharging 195 extinguishers and with that discharge, there's going to be a cleanup.

The product may not be environmentally damaging but the dust that's going to flow around after the training is going to affect machinery.

It's going to affect people and more than likely at the volume that we're using there's going to be some level of environmental implications.

It was then that I got involved with a local training company I had worked with closely in the past and that was very progressive and very cutting edge.

When I approached them about my problem with the training of the fire extinguisher for our corrective action, we actually came forth with a plan to create an end-user fire extinguisher course.

A major part of this plan was to use leading edge technology that was in place by a large amount of fire departments in the United States, including the New York Fire Department.

It is a digital screen that registers where the users spray the water onto the screen that is simulating a fire, so the fire behaves exactly the same as a real fire would.

The system uses pressurized water instead of a pressurized powder, removing all environmental implications.

The fire extinguishers can be recharged and refilled on site thus removing the cost of refilling the spent fire extinguishers.

The technology in the simulator would allow us to mimic several different types of fires such as paper, electrical, oil, gasoline or a combination of them. The training simulator also mimicked how each fire behaved.

Once we had the training simulator selected we started looking at what do we truly need to do to train people to be competent with the fire extinguisher. One of the major things that came out was the amount of stress that people were put under when a real fire was occurring.

Therefore, the bulk of our training was what the body does under distress. We created training that uses what Mother Nature gave us as stress triggers to allow us to perform better.

We also educated our student base that multiple people/extinguishers can be used to put out a single fire. And when we did the hands-on part of our program we actually had scenarios where two, three or four people came up and started using a fire extinguisher on the same fire. It took no time to educate our students to realise how quick that fire can be put out with multiple fire extinguishers being used simultaneously.

We also created a buddy system or a buddy check after the fire was put out because under extreme adrenaline we lose our ability to feel pain. After an incident we may have been burnt or hurt extinguishing the fire and not know.

Whereas, underneath the old system of training there was absolutely no buddy check, there was nothing in place to ensure that you were okay after a critical event.

Following my the rule of three philosophy, we started to finalise the training course.

The course was 30 minutes in class and 30 minutes practical.

We took a six hour traditional program and condensed it to 30 minutes in class and 30 minutes of practical, hands on training with the simulator.

In four days we trained 380 people and utilized only one workable hour for each site personnel, which totalled \$43,700.<sup>00</sup> of cost savings.

The shorter duration allowed the provider to charge a day rate as opposed to a per person rate and still meet their targeted financial needs. The course cost was brought down from \$180 to \$25/person. The total cost coming to \$9,500.

There was no environmental cost.

No refurbishing costs.

For savings of \$287,400 on one single corrective action.

Imagine the stakeholder buy in created after showing almost three hundred thousand dollars was able to be saved in costs while implementing a better product that truly certified competency.

The training was designed with very realistic scenarios where the students would have to go retrieve the fire extinguisher from places that it was locked up on site (truck beds, smoke shacks, wall hangers) and then they would utilize a fire extinguisher to put out the fire, followed by a buddy check.

The trained personnel were certified competent for the use of the fire extinguisher.

So how was it? What was this course like? Because it was very cutting edge, it was a "pink cow" (new experience) on the site and it was a great success.

A year later we ran a mock scenario on the site where we randomly selected people that had taken this 1 hour end-user competency fire extinguisher course.

We had a 100% success rate.

Everyone knew how to grab the fire extinguisher.

They knew how to test it and they knew how to put out the simulated fire and we actually saw groups of people acquiring several fire extinguishers to put out the same fire. Everything that we wanted to achieve for competency we did and even at the end of it they were doing buddy checks to make sure that they were safe.

So, in fact, the level of training and competency that they got was much higher than what the six-hour course would ever do.

From that day forth, I used these skills and principles on how to create training versus education and have been successful over and over again.

It is very easy to bring forward a program and it can be based on anything.

It can be safety based, it can be production based, it can even be quality based, as soon as you realize what you're trying to achieve.

By reducing the cost, providing a better product, and in a shorter amount of time the level of effectiveness of an interdependent site safety culture will be dramatically increased.

We need to put the old philosophy of droning through "X number of hours to get a certification so that your employee can go to work" behind us.

John Brix.