

POWER SURGE

A newsletter for clients of:
Power Specialists Assoc., Inc.
531 Main Street
Somers, CT 06071
(860) 763-3241

www.psaengineering.com

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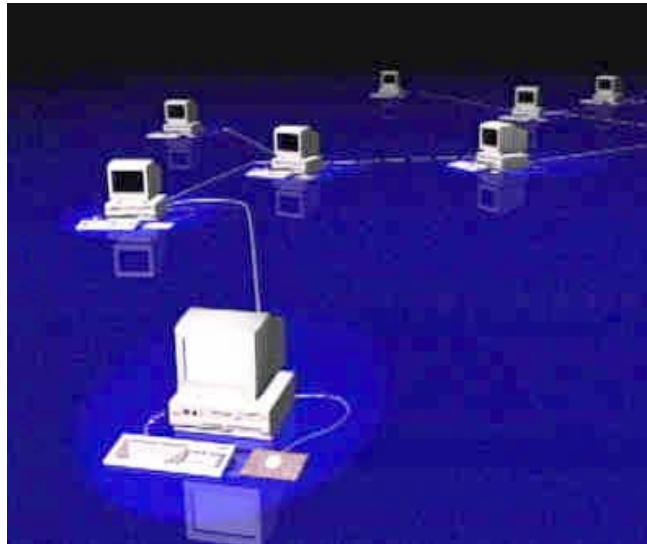
Selecting a CBT Program That Works for You

As a result of the PC revolution, there are many computer-based training (CBT) programs available for a wide variety of applications. On one hand, this array of options provides the buyer with potential benefits, such as:

- Inexpensive, generic, off-the-shelf products
- Competitive pricing associated with mass produced software
- Time-efficient, self-directed learning formats
- Ease of updating and distributing information.

On the other hand, the buyer is faced with a decision that requires careful assessment and evaluation due to wide variations in program design features and training methodology. This is not unlike the process of purchasing a new car. All models are designed to accomplish the same basic objective...but they certainly go about it in different ways!

Some CBT programs include video, animation, and simulation to enhance the learning process and hold learners' interest. Some utilize interactive features to confirm learners' comprehension, coupled with a system to monitor and track their progress. Others present generic technical information about related process equipment. Still others compile site-specific content for learning and on-line reference purposes. Many integrate some combination of these, as well as other formats and features.



Each of these approaches has specific advantages and drawbacks. The selection process involves assessing these factors and aligning the options with your needs, objectives, and budget. Some considerations for the selection process include:

- **How many of your training needs can be satisfied with a CBT system?** Some job responsibilities require skills and task demonstrations that are not easily evaluated with a CBT format.
- **What kind of information is important for your people to learn?** Process knowledge is necessary for safe and efficient plant equipment operation. Generic technical content is normally the least expensive type of resource that can be purchased, since it can be mass marketed due to its "one size fits all" approach. But, it may not exactly fit your situation.

- **What about specific information that provides details of your unique system layout, process controls, and operating procedures?** Most would agree that these are among the most desirable types of content for training and qualifying their department membership. Done well, it can provide many of the essential ingredients that enable effective training to take place, and it can be valuable on a daily basis as an on-the-job reference resource. It's downside? It is costly and time-consuming to develop.

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CBT Selection Advice

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- **Who will develop the content?** Due to the technical nature of the material, involving capable and knowledgeable people usually produces the best results.
- **How will you manage and track learners' training progress?** This can become an administrative burden if the guidance and record keeping system has not been designed with utility and ease of use in mind.
- **How easy is it to update or modify information?** Off-the-shelf programs are not normally updateable. Site-specific content should be easily updateable for obvious reasons.
- **On what type of system do you intend to run the program?** Stand-alone PC? Intranet?

In conclusion, as with the new car, there are many makes, models, options, and price ranges to consider when selecting a CBT system. Aligning your wants and needs with your budget will be a necessary step in this selection process. Negotiating creative ways to finance a program over time is one way to get the system you need sooner, rather than later. Adding content in a prioritized sequence can then be done to achieve your long-term training goals, while staying within your annual budget.

INSPECTION TIPS

During the outage season, PSA inspectors typically discover cracking in closure (crotch) plates around furnace wall openings. Contrary to popular belief, cracking does not only develop in lower furnace openings, although it is a common occurrence in this area. Cracking has been identified in upper furnace port openings as well as sootblower wall openings further back in the flue gas pass. Generally, the rate of crack propagation is slower at the upper furnace elevations, but with the aging population of boilers in the industry, tube failures can develop in more and more obscure locations. This makes it important to thoroughly inspect all furnace openings in the boiler.

Typically, cracks develop transverse to the tube in the closure plate in the valley of the relief slots. Over time, the cracks tend to propagate toward the tube. Sometimes the



Photo 1

crack will turn when it runs into the weld between the closure plate and tube. In this case, the crack will typically follow the heat affected zone of the weld and generally will not penetrate the tube. Other

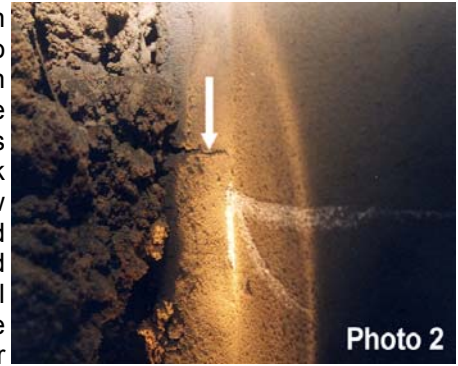


Photo 2

times, the crack will cross the weld and extend into the tube. **Photo #1** shows a crack that has not yet crossed the closure plate attachment weld. **Photo #2** shows a crack that has propagated close to the tube.

When cracks are identified, they should be removed. Several methods can be used to remove the cracks. A “burr” tool used at a relatively low speed of 600 RPM does a good job of cutting closure plate material and leaves a smooth round surface to minimize further crack development and propagation. A second method is to use an “air arc” to cut the material. Air arcing should be followed by additional burr grinding. A third method is to use a drill to “drill stop” the end of the crack. The “drill stop” method will only work if the end of the crack is removed during the drilling process. The choice of method used to remove or stop the crack will be dependent on its location and orientation relative to the tube. **Photo #3** shows a crack that was removed by burr grinding the closure plate.



Photo 3

Following the removal of any cracks nondestructive testing should be done. On ferrous materials we prefer wet florescent magnetic particle (WFMT) testing. On non-ferrous materials, such as composite tubes, dye penetrant (PT) testing should be performed. **Photo #4** is an example of a tube where a crack propagated into the tube. In this case WFMT testing was repeatedly used as the tube was burr ground until the crack was entirely removed. When this step was completed, the remaining wall thickness was measured to determine whether a pad weld repair or Dutchman section would be used to complete the repair.

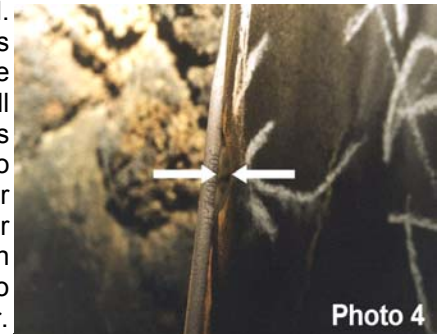


Photo 4