What use is forehearth training?

Mention forehearth training and operators may recall post-commissioning training, during which a forehearth installation engineer gave instructions on how to set the air gas ratio or change a setpoint before leaving an instruction manual and a million dollar distributor/forehearth installation and catching a plane home! John McMinn suggests an alternative scenario.

What the operator has received is training in its most basic sense. When training is incomplete, bad practice inevitably fills the void. In many plants, "things are done because, well, that's how we do things here." A philosophy of bad practice is better than no practice but bad practice proliferates and is too often passed between generations of operators where, in the transition, it becomes accepted as normal practice.

It is depressingly common to see attempts by operators to modify the operation of high-tech forehearth systems in an attempt to get them to emulate the operation of the old-fashioned systems they replaced. This happens because of inadequate training and more importantly, because of lack of depth of training.

Is this really the basis on which to operate expensive, potentially dangerous and what is arguably the single most important element in the container production process? Of course, the operator must know how to make routine adjustments but this alone does not equip him to operate the forehearth at optimum efficiency – has he received sufficient training to be able to identify what this even means and how to ensure it is achieved?

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PROCESS UNDERSTANDING

Training should provide the operator with the ability to understand the processes taking place within the forehearth system and the knowledge to allow him intuitively to predict the implications and reactions of each adjustment he makes. A forehearth system comprises several complex and interacting boundaries – cooling, control, combustion systems - and the glass itself. It's great to be able to know how to change a setpoint but considerably better to know what processes will occur within the system as a result of that change, how it will affect forehearth operation and within what timescale.

There are few adjustments on a forehearth that produce a single reaction. The operator should be able to predict the net effect on the process of any changes made to any part of the system. To labour the setpoint example yet again, consider a different angle - making the same adjustment to setpoint at different ends of the pull rate spectrum will produce very different responses within the forehearth. To overcome this, the operator should understand the dynamics of the forehearth and the glass within it.

What the operator probably didn't learn in his post-commissioning training is that forehearths do not produce optimum operational efficiency over the entire tonnage and gob temperature ranges. An analogy is driving a car, where the optimum fuel efficiency is probably achieved at a constant speed of 85km/hour. Driving at 130km/hour will use more fuel but it is still possible to drive at 130 and obtain the maximum efficiency for that speed. The same is true of a forehearth. The optimum tonnage for a particular forehearth may be 120 tonnes but it is the operator's responsibility to ensure that if the pull rises to 150 tonnes it is operating at the highest operational efficiency possible for that tonnage. This is what operator training should provide.

IMPROVED KNOWLEDGE

It is not only forehearth operators who benefit from training. The task of selecting a particular forehearth technology can have huge implications for the productivity and financial success of a company. For this reason, many companies play safe and remain with the same technology, even though they know there is probably better, technically superior technology available. This 'better the devil you know' philosophy can tie a company into an inappropriate technology.

In many cases, the choice of technology is due to the relative persuasive talents of individual forehearth salesmen. This cannot be the best way to evaluate a system critically or assess how appropriate it is to particular production requirements. A key requirement for plant personnel charged with technology selection should be a wide knowledge of alternative forehearth technologies and the ability to match the most appropriate technology to best suit their needs. Choice of technology should not be based on replicating existing equipment because it is seen as the simplest option or avoiding new technology because technical personnel do not understand new forehearth developments. This knowledge can be obtained from in-depth forehearth technology training.

For forehearth operators, Forehearth Services Ltd provides the fundamentals of forehearth engineering and operation, equipping operators with the skills required to optimise and maintain forehearth performance. For furnace technicians, training provides an understanding of a wide range of alternative forehearth technology, providing the ability to assess their own and available technology. A well-trained technician or operator is an asset. ■

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