Only two weeks left in the year and it looks like we stand a good chance at setting a new Hotwork sales record. Thanks to everyone who contributed to a great year.

We had a non-injury incident around Thanksgiving on a glass drain in California. We were planning to drain a tank of flint glass and had drilled under the charge hole in a furnace without a doghouse. Kevin was doing the drilling and Shane was on the ball. When the drill broke thru to glass, a violent eruption occurred that pushed the kaowool out of the charge hole and dislodged a sill block. The glass erupted so violently that Kevin had no choice but to evacuate leaving the drill bit in place where it broke thru. The eruptions continued until Shane shut the water off at the tree. This photo shows the result at the base of the ladder that Kevin was using.



Here's a shot when the incident was in progress.



We have drilled into glass hundreds of times and no one can remember a reaction this violent. Years ago, Ted Randle experienced a similar eruption on another flint container furnace. In looking at all of the factors contributing to this event, we can't identify exactly what was different this time. The client's reported glass temperatures were well within normal ranges. They were still producing bottles at the time. The only unusual condition reported by the crew was that the drilling of the last 5" of block went very quickly – maybe only taking 2 minutes.

In trying to analyze root cause, we can only speculate about what contributed to this reaction. Flint glass is less viscous than some glass (it runs like water). The quick drilling may have not cooled the block and glass to the same extent as drilling at a normal rate might have. Although the client reported normal temperatures and chemistries, it just seems like something more must have contributed to this violent reaction.

With less than perfect root cause identified, our corrective actions have to be completely defensive. We need to insure that openings such as the charge hole are secured better than with just kaowool. Whatever we use to cover the hole has to be able to withstand a wave of glass erupting from the drill site. This could be brick and/or board backed by metal. Especially when drilling into thin glass, we should probably slow down the drilling rate if, for some reason, it wants to go like butter. More cooling effect can only help. We will continue to work with some glass industry experts to see if we can identify other factors that may have contributed to this eruption. In the meantime, we almost have to be prepared for it to happen and play good defense to protect ourselves. Thanks to Kevin and Shane for great reactions this time in a bad situation.

The crew then proceeded to extract a frozen drill bit from a block. They did this with help from our client by freezing the glass from the inside with a water lance, welding an angle iron on the bit, and breaking it loose in the hole. When we did resume the drain, the glass was much cooler since some

electrodes were lost in the event due to cable damage. Here's Shane at the hole once things returned to normal.



We have been doing more double container drains recently. Here's a pretty good shot of a double container set up FYI.



We are continuing to work with authorities on the recent theft in our back parking lot. A suspect was identified selling our stolen goods at a local scrap yard. The police have the ID of the thief. We recovered about half of what was taken. The suspect is currently in violation of a previous parole and has not been located or re-arrested yet. You should all be aware that we have experienced several thefts from the back lot including one Technician's personal vehicle. It would not be wise to leave anything of value in plain sight when parked back there.

Our client in Kazakhstan has experienced another furnace problem and we have mobilized to heat up their #3 furnace sooner than expected. Rumor has it that it is a little chilly over there at this time of year.

We have purchased eight new small Eurotherm digital recorders. Ted is having custom cabinets made for them but they should be in the field in the near future. Christopher is also evaluating some wireless technology for thermocouples. Comp wire would be run from the TC to a local transmitter and a receiver would be located at the recorder. The temperature values would be broadcast wirelessly between the transmitter and the receiver. This is a relatively expensive solution but may be useful in eliminating some very long comp wire runs. We have not committed to purchase this equipment yet but an initial trial was quite successful. It requires a special recorder configuration similar to the master/slave setup that we have used on a few jobs.

I did not receive much feedback on Christopher's explanation of the blast furnace stove operation. We are continuing to look for ways to provide learning tools. If you see something that is beneficial, let us know and we'll try to do more of it. That BF stove link is still available in the bulletin board section of the website. There are also a couple of new videos posted and I see an updated phone list in the documents section. I recommend that you visit the login area of the website at least once a month.

We recently had a somewhat trying BF stove hold hot project while a ceramic burner repair was undertaken. It did not proceed as planned and there were a lot of complications and field directives from the client. Irish and D just completed a "lessons learned" meeting with the client and we think that we have a common understanding on how to improve the situation for future projects.

We're in the final hours of 2014 and I hope that we can finish the year with several important milestones. An injury free year would be a major accomplishment as would a record high sales volume. As always, there are a few things that we can do to improve but we must also be doing more than a few things right. The client feedback forms would support that positive impression.

I hope that you each get to enjoy some quality time with family this holiday season. A special thanks to those of you who are out during the holiday servicing our client's needs.

Tom