Did I jinx us? In the last Tech Note I pointed out all of the positive feedback that we had been getting from our clients. We had feedback survey forms that were all 10's and even specifically authored, unsolicited letters of praise about our Techs. All really good stuff.

Since that time, we have continued to receive some very positive feedback but we have had a couple projects where a client was not happy – and they made their feelings known in somewhat graphic detail. Of course, we have to discuss these situations and find a way to improve.

We had one client where we drained four of their container tanks in a couple week period. Three of those projects went well and one had some problems.

The problem tank was being taken down for a hot bottom repair. To perform that repair, all of the glass needs to come out. Typically we get as much as we can out the drain hole in the sidewall and then they drill the bottom and let the remaining glass flow into the basement. The more glass that comes out the bottom, the bigger the clean up in the containment area.

On the setup day, Kevin Kelton asked for information about where the furnace bottom was. An engineer from the plant supplied a drawing but he was unsure whether it accurately represented the actual furnace construction. Our client was the rebuild contractor and he did not participate in this discussion. We proceeded to set up based on our understanding of where the bottom was. This photo looks up at the bottom of the trough as installed.

We believed we were setup with the trough at the bottom of the sidewall block but, in fact, the bottom of the sidewall block was at the bottom of that course of brick.

Anyway, the setup was completed and the drain was started. During the drain, our client decided to experiment with a trailer mounted chiller that was onsite for use during the hot bottom repair (to take heat out of lance cooling water). The idea was to cool the drain water and allow us to run faster. We

did not have any advance notice of this – it was sort of a last-minute initiative and we didn't have the chance to evaluate the plan. They just decided to do it and went about installing it. As we were trying to manage the water and avoid spillage, they were taking water out of the first container, pumping it thru the chiller and putting it back in at the third container. It soon became evident that the chiller wouldn't run at our water temperature so they tried to fix it by pumping some drain water out to a "Rain for Rent" to lower the volume. Then they injected makeup water ahead of the chiller to try to get the temperature down so the chiller would run. All of these maneuvers resulted in us having to throttle the makeup water at our pump and we ended up running slow due to high water temps. So the drain took longer than planned.

As the ball came out of the hole and it started to trickle, they dipped to measure the level in the doghouse and came up with about 8" (some said 11"). No one could figure out why but it was down to a trickle. We discussed it with the plant engineer (not our client contact) and we decided it was done. So we shut down and tore down as much as we could. The rest couldn't be handled until the next day so we left site and went to the hotel. That's when our client contact figured out that there was too much glass left in the furnace, more had to come out, and where was Hotwork?

Now the fireworks were going off and everybody is involved. Client wants to drill a new lower hole to get more glass out. Why isn't Hotwork onsite. Everybody is concerned whether we could get it to run with no head pressure and cooling from the drill water. Nobody can figure out why there's so much glass left in there. All kinds of options were discussed such as oxy-lancing the existing hole to enlarge it, drilling a 4' hole, etc. Day shift goes back in and starts setting the run back up. Night shift takes over and a feeble attempt was made at lancing. Dave and our client made the decision to demo out the brick, cut the tubing below the brick, move the trough down, and drill a new hole. During this work it becomes obvious that the bottom was lower than we understood originally. There was some debate with the client about how low to drill but Dave Smith didn't want to get into the pavers. Eventually he drilled a hole that was 4½" lower than the original hole. With minimal water on the drill, he broke thru to glass, got the drill out, and pushed the core into the furnace. Glass flow was re-established. We drained well into daylight and attempts were made to get even more glass out by lancing the hole again. Finally it was called.

We started to get feedback that our client was unhappy with Dave (who got the drain started again) and that their shift-lead had been "disrespected". We still don't have a clear understanding about this situation but there is a meeting scheduled to go thru this whole scenario.

So what are the lessons learned for Hotwork from this? There may be more once we meet but here's a start:

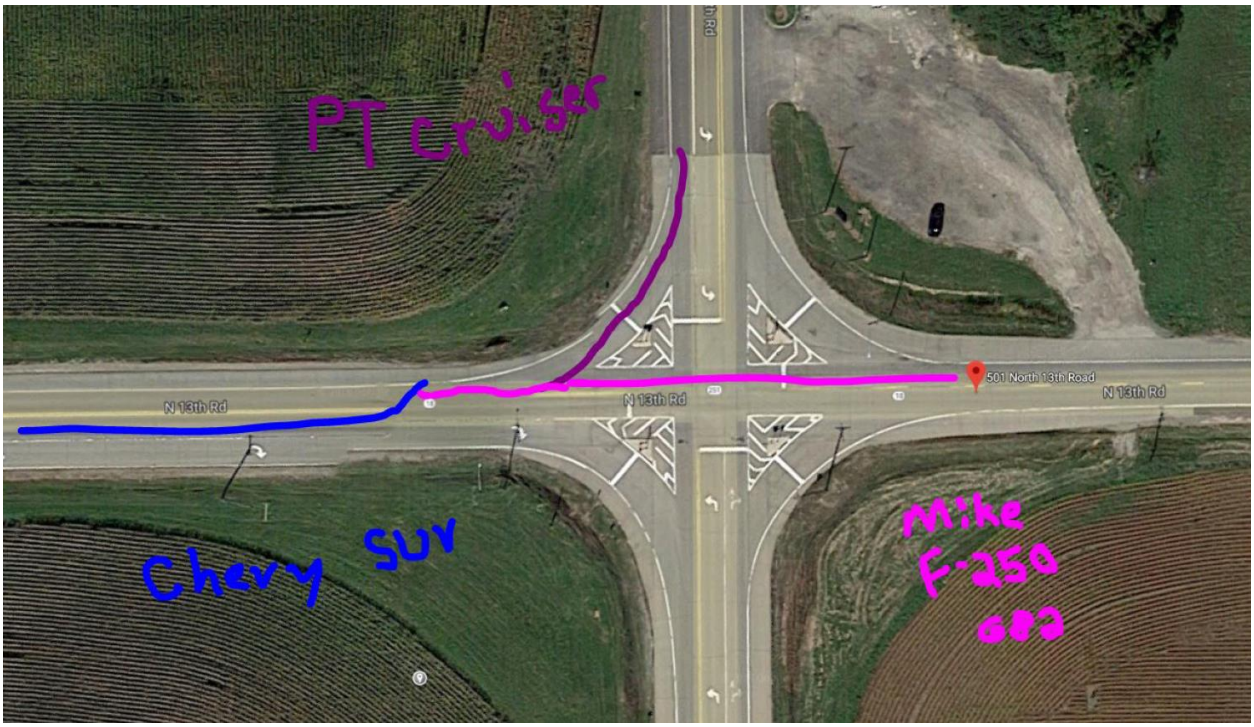
1.) We need info from our client on where the bottom of the furnace is. They need to participate in the decision on the location of our hole. Sometimes the information may not be completely forthcoming or clear but if they agree that's where we should put it, it eliminates a lot of second guessing later.
2.) Whenever possible, we should get the bottom of the sidewall block exposed so that we can see it.
3.) Never teardown and/or leave site without checking with our contact.

We also need to have an understanding with our client about making changes to our water system without prior approval and/or discussion. Even well-intentioned efforts to help can have risks or detrimental impacts that they may not understand.

Meanwhile, wildfires are burning in California. One of our client's plant is in the evacuation zone. The fire is not under control and it is unpredictable where it will go next. Plant production is shutdown, a skeleton crew is there and they lose power from the utility company (due to the fires). They have an onsite emergency generator but lost a lot of heat during the initial power outage. Call Hotwork.

So we mobilize a crew, hotshot equipment and go running toward the wildfires. Anyway, we are able to get people and equipment to site, power is re-established to the plant, we fire in the forehearths and the client is very grateful for our efforts to help them out in their time of need.

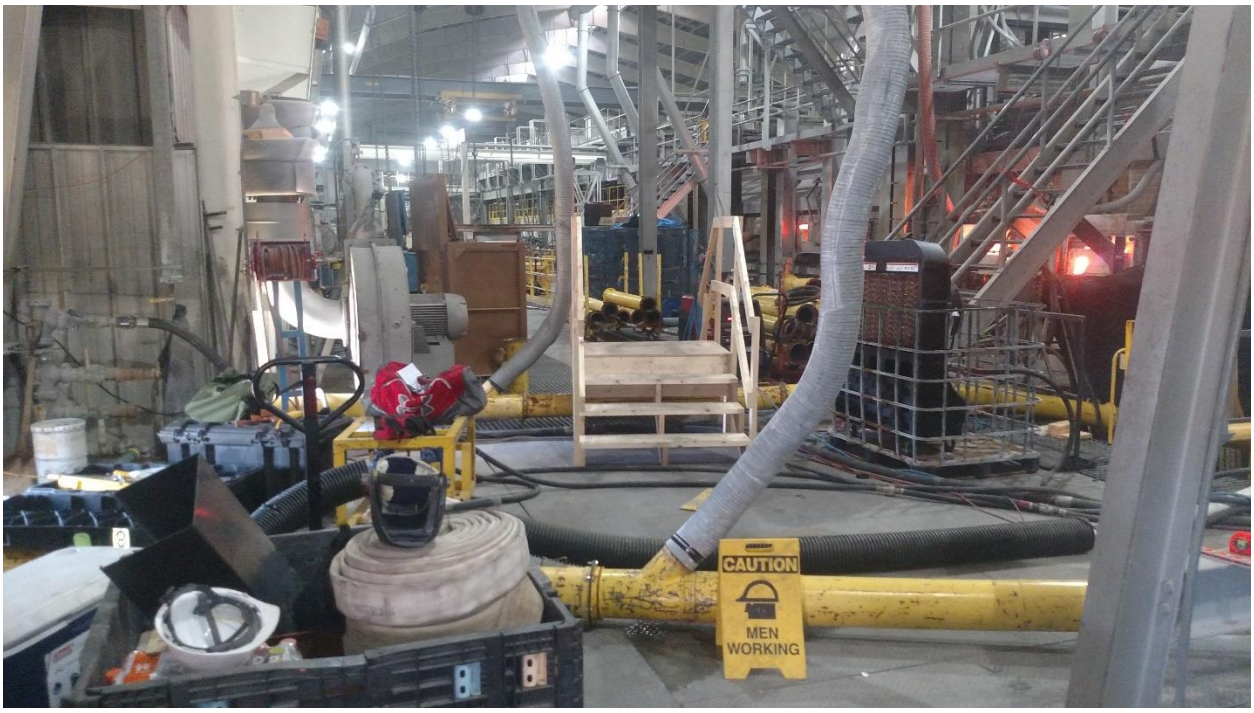
Meanwhile Mike Blythe is finishing up a night shift in Illinois. He goes to the hotel and gets 3 hours of sleep. He says he was awakened by an ambulance and couldn't get back to sleep. So he decides to head for home. He's not far from the hotel, getting close to the interstate, and he blows thru a four way stop intersection and hits a PT Cruiser on the other side as the cruiser is merging onto his road. The impact pushes Mike into the oncoming lane and a SUV swerves to miss him and gets hit by Mike on the rebound. Luckily, no one is seriously injured.



Mike says he had a sneezing fit and didn't see the 4-way stop. This is dead flat and straight Illinois – the intersection would be visible for a mile in advance. Whether it is sneezing fit, fatigue, cellphone distraction – it doesn't matter. We have to be in control of our vehicles. There is no excusable reason to blow thru a stop sign and have a wreck with the serious potential for injury like this one. I am so thankful that no one was seriously injured.

So next we had a double tap float drain. The drain pipe came out of the building low and the client wanted the glass deposited just outside. So the setup had the two pipes terminating just outside the sheeting line and the only vent was a round vent inside the building. The round vent had duct going up

20’ or so. One of the runs had the duct tied to a handrail, the other one had the duct standing unsupported.



During the drain, visibility was poor on the cullet pad. The front end loader bumped or blocked the pipe several times. At one point, the loader got in the flow of glass and water and got red hot glass on a hydraulic hose. It burned thru the hose, released hydraulic oil, and ignited. The cab was engulfed in

flames and the operator bailed out. He got burned on his arm and a major accident investigation ensued. Some changes were made to improve traffic at the pipe end.

Sometime later, the loader blocked the end of the pipe backing glass and water up in it. It went up the duct inside the building and the weight of the water in the duct caused it to fall over to where it was pointing at Mike Gerald who was manning the ball on his first shift after training. Mike got the ball shut off, got out of the way buy he had been sprayed with water. He didn't think he was injured but over time he learned that he had blisters on both his arm and his leg. He received first aid treatment and completed his shift. Hotwork made the decision to relieve him from the jobsite but the client was very concerned that a second accident/incident had occurred due to the same root cause – heavy equipment operation in near zero visibility conditions.

Larry Drake was planning to meet with the crew following completion of the drain so he was already in route to the site. The client wanted to meet with Hotwork management over the situation and Larry drew the short straw. Larry met with several client managers and with third party safety consultants who had been assigned to improve safety performance on this major outage. They had a list of items that they wanted to convey:

1.) The Hotwork method of draining pushed responsibility for the cullet off on them and they didn't want it. Heavy equipment operation in zero visibility is an unacceptable safety risk.
2.) They have performed outages around the world and have other vendors who handle the cullet with scrapers. It is an inherently safer method and Hotwork should improve.
3.) Hotwork equipment is generally perceived to be older, less effective and less reliable. A pump failed on this drain and was used as an example.
4.) Glass temperature has been an issue in both recent drains done with Hotwork. Hotwork should install a thermocouple and a large display so that everyone can see glass temperature all the time.
5.) Our crew safety attitudes were unacceptable. Examples cited were PPE not worn, an incident of walking away from a safety officer when discussing a fall protection concern, handling of JSA'a and toolbox talks. When the injury to Mike occurred, our contact noted that one vent was tied off and the other wasn't. He pointed it out and said he missed it, we all missed it. Our crewmembers said it might have been worse if it was tied off – the problem was the front end loader. From his perspective blaming others and not taking responsibility for what we could have controlled.
6.) They said our day crew told them in advance that the night shift was going to "dog it" on the move down to the lower hole. When they came in the next morning, it had taken 6 hours to move one hole down. Dayshift moved the other hole down in two hours.
7.) Accidents and incidents that happened caused delays. They occurred because of the way Hotwork says the drain should be run. Then time was "wasted" on the move down. Then the glass was cold because we took off too much gas which slowed the drain down. They expected 8" or 10" left in and there was 14".
8.) They criticized Hotwork for not having a completed and comprehensive accident investigation done even though the deadline that they gave us was later that day.

Larry had little he could do but take his beating and take notes. He has brought the message back. We will have to formulate some sort of response and we will have a number of follow up meetings with

them. I believe that there was some "piling on" going on but there is no doubt that they are unhappy and expect changes.

Our accident report when submitted made the following points:

1.) A rectangular vent outside the building is necessary. It is the "fail safe" in the case of blockage and the area around it should be restricted access. Note: If we needed to move the cullet deposition point in order to get a rectangular vent in, so be it. It is particularly important at this client because on all of their furnaces, the pipe comes out low (in harm's way).
2.) The pipe end should be terminated short of the jersey barrier. That way the glass and water will shoot over it and the pipe end has a physical barrier protecting it.

In general, I think that we have to play better defense versus just thinking "our responsibility ends at the pipe end". It may be a valid criticism that we are not accepting enough responsibility for the overall project success. What more can we do with setup, communication, and planning to prevent the "pipe end follies" that happened on this job? We see the steam on every job but the guy sitting in the front end loader might be seeing it for the first time. More to follow on this one I'm sure.

On another subject, we recently sent a new class of trainees to the field. In the course of hiring two new Technicians in California, we learned that California has their own more restrictive wage laws (just like they do for environmental, gas mileage and a lot of other things). As a result, we have had to modify the standard Hotwork pay practices (site bonus and Chinese overtime) to comply with California law. Therefore, do not be surprised to learn that the Technicians who live in California are being paid differently. The total compensation package results in the same level of compensation annually but overtime is calculated differently and there is no site bonus.

Shane Bennor, a recent Technician of the Year, has decided to leave Hotwork. He says that 29 years of travel is enough. He's ready to stay home. I wish him the best in his new life. We will miss him and, you never know, maybe he will miss being on the road.

We recently learned that Dan Devera's mother (and Paul's grandmother) passed away in Streator Illinois at age 91. Our condolences and best wishes to Dan, Paul and the Devera family.

Tom