PODCAST EPISODE TRANSCRIPTION

Episode Summary:

In this episode Tom Bailey and Jim Jacoby (VP of Technology at Tri-Sen) discuss the claim that an advanced surge control/process control algorithm allows operators to set their compressor surge control setpoint (margin) closer to the compressor surge line.

Tom: Hi, and welcome to the Turbomachinery Controls Podcast, where we'll be informally discussing turbomachinery controls and turbine safety-related questions and topics.

Opinions expressed here are our own and not necessarily those of Tri-Sen.

I'm Tom, and I'm with Jim Jacoby, senior vice president here at Tri-Sen.

Jim: Hey, Tom.

Tom: Hey, Jim.

In this episode, we wanted to follow up on our surge margin episodes, where we had talked about how we set the distance from the surge line as the set point for the anti-surge controller or the safety margin or the surge margin. But anyway, that distance.

There are people in this space, competitors that describe their solutions as being superior from other solutions in that their solution allows you to run closer to the surge line, and therefore you're not recycling as much and you're not wasting energy.

When we were chatting about this last time, we talked about the things that affect the distance you can run from the surge line, what you have to set your set point at. We had said they were things like the process and the speed of response for the anti-surge valve, vent valve, whatever. But basically, they were external from the surge control itself.

But the people that we compete with, at least one well-known solutions provider, says that their algorithm or their PLC platform or something about what they sell, allows you to be [operate] closer to the surge line, to have an operating set point, an anti-surge set point that's closer to the surge line.

So, my question is, is that marketing hyperbole? Is it valid? Or is there something going on? Do they actually have something special about their controls or their PLC that allows them to run closer to the surge line?

Jim: Special…, I would say no. Anybody that's been doing this business of surge control or process control for compressors has basically got the same tricks.

Now, as far as being able to get closer to the surge line because of their algorithm, that's probably, once again as you mentioned earlier, it's not something that the algorithm does so much for you.

The one thing that they used to hype was that because they were faster, they could get a jump on that valve and get it moving quicker so that you could get the valve open faster and prevent an excursion across the surge line. But the reality is that that quick jump is going to upset the process and eventually make the operators mad. They'll shut the surge controller off because preventing the surge was worse than letting it surge and not upsetting the process.

What came about in the mid-90s is everybody in this business figured out that you needed a way to coordinate the process control with the surge control because, by and large, the only reason you go into surge, unless there's a trip or some really bad event that goes on in your process, the main reason you go into surge is because your process control system pushes you into surge. You have a drop in throughput of the compressor because you've lost a furnace or something like that and the machine slows down to balance out the flows to keep the pressure from dropping. When you do that, if your process controller doesn't know where the surge line is, your anti-surge controller reacts and upsets the system.

(CONT.)

PODCAST EPISODE TRANSCRIPTION

Episode Summary:

In this episode Tom Bailey and Jim Jacoby (VP of Technology at Tri-Sen) discuss the API670 committee makeup , the role of control systems vendors within the committee, and if the vendors are over-represented. .

Jim: So, it's really more about having a coordinated control between the two, the anti-surge controller and the process controller.

Once again, how close you can run to the surge line, even with that coordinated control, has little or nothing to do with the algorithm. Having the algorithm, that process control coordination, decoupling, whatever you want to call it, allows you to run without swinging the system, but you still have the same constraints that you did even without that coordination. You have to have a match between the response of the system and the response of your controller.

Tom: I don't want to put words in your mouth; but to me when I'm thinking about this, I'm thinking about the PLC itself. Then any credible surge control provider has process control, integrated process control, the decoupling or whatever we want to call that. Again, if you say that, okay, that's a baseline. You can factor that out because everyone has it. If everyone has that, we'll just go ahead and take that out. What's left? I think we talked about it last time. If you're worried about bouncing your process, you can't run really close to the surge line if you're have a slow valve ... I'm just talking (beep) now.

Jim: Yeah. No, that basically sums it up. Yeah, you're talking (beep). No. Yeah. No, that sums it up really. The algorithms that allow you to coordinate between the process controller and the anti-surge controller are just going to make your system behave and allow the process to run smoothly. But all of the dynamics that factor into how close you can run to the surge line are still there. You've got a system response and a controller response. They have to match. There's nothing you can do about that.

Tom: Yeah, that's right. Okay, so now I remember what I was thinking there, and that is that it's kind of a one-way street. Like using the recycle valve or the vent valve for the process to help not get you into a place where you have to use your anti-surge controller anyway is really what's happening there, right?

Jim: Yeah, you're right. You've just made your process controller a little smarter. It knows where the edge of the cliff is and has the ability to use the anti-surge valve as a handle in controlling the process. So, what you're doing is letting the process controller not push you into surge, so your anti-surge controller never has to operate. That's really what it gets down to. But you can only get as close as the dynamics of your system can tolerate.

Tom: Period. Done.

Jim: Period. Done.

Tom: Yeah, and no amount of marketing poetry-

Jim: No.

Tom: ... can change that.

Jim: That's it.

Tom: Well, there it is then. Contact us at turbomachinerycontrols@tri-sen.com. Let us know what you've got on your mind. Thanks for listening, and we'll see you next time.

[END]