



Cook Legacy July eNews

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Featured In This Issue:

Expert Interview Series

Ian Parry is the the senior project engineer for Cook Legacy and is instrumental in the mechanical and structural aspects of building Cook Legacy systems. He also designs the control systems for Cook Legacy's AirBurst Systems. With 35 years of experience in Mechanical Design, Control System Design, and Process System Engineering, Ian is an invaluable member of the Cook Legacy team. Recently, I sat down with Ian to asked him some questions about control systems.



Other Information

[Cook Legacy Project Questionnaire](#)

RS: Randy Surface: Your initial engineering training was mechanical, correct?

IP: Ian Parry: Right. I studied Mechanical Engineering at Leigh Technical College in England.

RS: How long have you been designing control systems?

IP: Umm...20 years.

RS: Can you explain how a generic control system works?

IP: Control of the sequence of operations of the equipment. The system gives feedback through positive signals which allow the sequence to continue.

It does this continuously. The operator doesn't have to be involved...except for any alarms.

RS: What are the key aspects of a control system?

IP: An HMI, enclosure (indoor/outdoor, rating ULFM requirements), customer specifications and preferences (i.e. supplier). And a PLC which uses ladder logic/software control. Relay logic is preferred by some. It's harder to build because it's hardwired.

RS: Does it make it easier to design these control systems since you're involved on the mechanical/technical side of things too?

IP: [At a prior job] I was in the field doing start ups on equipment we provided. Then I wanted to improve the controls for the user.

Some of the improvements:

- Made the front panel more user friendly
- Improved internal layout and structure of inputs/outputs and relays in order to simplify troubleshooting requirements
- Simplified instrumentation
- Added limit switches and sensing devices
- Transitioned from 120v AC to 24 v DC power. The municipal market still lags behind with 120 v AC. It's overkill, especially with limit switches, etc
- Simplified wiring

RS: Why is a good/accurate control system so important?

IP: It simplifies things. If it's not easy to understand, then something's wrong.

RS: Of course you don't do this entirely alone. What help do you have?

IP: [There is] Jim Conaway. We give him detailed drawings with I/Os, loops, description. He does the ladder logic.

RS: What makes Cook Legacy control systems unique?

IP: I've been here three years. It's different because before I was working with industrial customers rather than municipal. A lot of companies don't have written specs for every possible scenario but municipal customers do. There are many diverse projects here, and [we're] executing them well.

RS: Any thoughts on the future of Cook Legacy controls?

IP: Touch screens are becoming standard. And hooking controls up to a local network is becoming common as well...Scada systems. They're PC-based programs that monitor an entire system.

Ian's five best practices for control systems:

1. Keep it simple. Follow the KISS principle.
2. Read the specs thoroughly.
3. Talk to the end user and find out what they want (i.e. preferences) and how you can help them.
4. Consider the guy in the field and how he's going to troubleshoot/maintain the equipment.
5. Keep up with the documentation of the control drawings and changes in the O&M. Remember: You can never have too many photos and correct information when you're trying to fix it.

If you have a problem that Cook Legacy can help with, [contact us](#).

Thank you,
[Randy Surface](#), Communications Director

Featured Product: Cook Legacy IceBreak

For anyone operating a water intake system in cold environs, frazil ice is a familiar problem. Tiny, slushy crystals form and are distributed throughout the water. Build up of frazil ice is a threat to water intake systems because it aggressively clogs screens and is difficult to remove. The frazil ice can stick to virtually all portions of the intake structure and build up until all water flow into the system is cut off.

Cook Legacy designs and builds bubbler systems for control of frazil ice that can be integrated into an AirBurst system. This Cook Legacy IceBreak System stops the formation and attachment of frazil ice to system components. If you have questions about intake solutions, please [contact Cook Legacy](#).

Case Study: Chelan Tailrace Intake and AirBurst System

Cook Legacy recently engineered and built a large intake system destined for the Chelan River in Chelan County, Washington. The site is located near the confluence of the Chelan and Columbia Rivers, approximately 40 miles north of Wenatchee, WA.

As a part of a larger project to restore year-round flow to the river (which had been absent since the 1920s), five Cook Legacy intake screens and an AirBurst with five burst valves were installed in the dam tailrace. This helped increase flow and safely pass fish downstream. Cook Legacy's system included level sensing, differential pressure sensing, and a large five-valve manifold system all custom built to fit within a prefabricated building.

Several months later, the increased flow has helped renew spawning habitat in the river for the threatened chinook salmon. Salmon are returning to the river and restoring the once dried-up habitat.¹



If you have any questions about Cook Legacy consulting on your project, please [contact Cook Legacy](#).

1. Pratt, Christine. "Chinook Spawning in new Chelan River Habitat."
[The Spokesman-Review](#) 23 Apr. 2010
<<http://www.spokesman.com/stories/2010/apr/23/chinook-spawning-new-chelan-r-habitat/>>.

Cook Legacy at HydroVision

Come by and visit Cook Legacy's booth at the HydroVision International conference. This year's conference will be held July 27-30 in Charlotte, NC.
