AIR CLEAR

THE ROLE OF Control Engineers at Air Clear

A Spotlight on Andrew Wells

Today, we're diving into the world of control engineering, an essential function that keeps our air pollution control (APC) systems running smoothly. Our engineers are the backbone of ensuring that our cutting-edge systems are efficient, reliable, and compliant with regulations. We'll also introduce you to Andrew Wells, one of Air Clear's talented controls engineers, who will share his experiences and insights into the industry.

WHAT CONTROL ENGINEERS DO AT AIR CLEAR?

At Air Clear, we specialize in designing, manufacturing, installing, and servicing air pollution control (APC) systems for a wide range of industrial applications. But building the equipment is only one part of the job. Air Clear relies on a team of skilled control engineers to ensure that the APC units operate as intended.

A control system is a set of devices that regulates the behavior of other systems or devices. Controls Engineers are responsible for programming the control panels that allow the APC units to communicate with our customer's facility's process. This is a critical component of the overall system, enabling the equipment to operate automatically and respond to changing conditions in real-time, ensuring operational effectiveness. Their responsibilities span various crucial tasks, including:

Start-ups: On-site supervision during system installation, ensuring it meets specifications and compliance requirements.

Factory Acceptance Testing: Rigorous pre-shipment tests to guarantee system functionality, allowing clients to customize their control interfaces.

Installations & Service: Post-installation integration with client facilities and providing ongoing maintenance support.

Remote Monitoring & Troubleshooting: Setting up remote systems for tracking equipment performance, particularly useful in complex or remote setups.

Control engineers need a robust skill set, including mastery in programming languages, control system design, Piping and Instrument Diagrams (P&IDs), and Human-Machine Interfaces (HMIs).

443.245.3400 443.245.3407
2400 Oldfield Point Rd
Elkton, MD 21921

MEET ANDREW WELLS,

AIR CLEAR'S NEW CONTROLS ENGINEER

Andrew is a controls engineering veteran who's gained invaluable experience and skills through rigorous training and practical problem-solving. We interviewed him to get his take on several aspects of this role:

WHAT INSPIRED YOU TO BECOME A CONTROLS ENGINEER, AND HOW DID YOU GET YOUR START IN THE INDUSTRY?

"When I started in the air pollution control industry, it was the first time I had ever worked in an engineering office setting before, and I threw myself into it, studying day & night. The process was terrific, and I learned a great deal in a very short amount of time...it was truly an incredible experience. I learned every aspect of how an engineering office operates, especially how to manage projects, but the biggest thing I acquired was the ability to program."

One contractor seemed vital; he was a skilled programmer, but it was clear that he didn't have time to do everything we needed. Often, our startups had to be rescheduled around him. I realized that If I learned the program, I could not only gain job security, but we could move our startups along without any future scheduling problems. This was a challenge I was up to. Not only would it help the company, but it would make me invaluable. I again studied around the clock until I became proficient enough to do the startups without him, taking over all of the electrical & controls design."

WHAT ARE SOME OF YOUR BIGGEST CHALLENGES WHEN PROGRAMMING CONTROL PANELS FOR AIR POLLUTION CONTROL EQUIPMENT?

"There are two significant challenges. The first is to understand the process and how our equipment affects the process. And secondly, it is to give a finished product that is easy for the operations and maintenance personnel to understand and use."

443.245.3400 443.245.3407
2400 Oldfield Point Rd
Elkton, MD 21921

CAN YOU DESCRIBE A PARTICULARLY COMPLEX OR CHALLENGING PROJECT YOU'VE WORKED ON AND HOW YOU OVERCAME ANY OBSTACLES DURING THE PROCESS?

"Every project is challenging. These are all custom-engineered projects. You're not doing the same thing from job to job, even if/when the process is the same. Of course, the huge projects with +100K scfm flow rates, the RTOs, scrubbers, and ancillary equipment, are extremely challenging, but I have found that occasionally it's the smallest unit with complex controls and wild swings in VOC concentration that can prove to be the most difficult.

One of the most difficult projects I ever faced was just a small unit in a wastewater treatment plant. It had a ton of interlocks and very complex controls, along with a VOC concentration that was all over the place and changed rapidly. So, we put our heads together, and we went back to the drawing board. Our team systematically reviewed the HAZOP process, inspecting each piece of equipment and determining what could and could not be changed. After implementing the changes, we tested each of them and repeated the process until we got a working system. Eventually, it was just resolved by good old-fashioned engineering."

HOW DO YOU STAY UP-TO-DATE WITH THE LATEST TRENDS/ TECHNOLOGY IN THE AIR POLLUTION CONTROL INDUSTRY, AND HOW DO YOU INCORPORATE THESE INTO YOUR WORK?

"Regarding the air pollution control part of the job, the team at Air Clear has incredible knowledge and is more willing to cross-train. Also, our vendors help to keep us up to date on new products and technology. Regarding the controls portion, I study a lot and take courses to stay up to date. It takes commitment and self-discipline to stay current, but it keeps the job interesting."

"There are two significant challenges. The first is to understand the process and how our equipment affects the process. And secondly, it is to give a finished product that is easy for the operations and maintenance personnel to understand and use."

443.245.3400 443.245.3407
2400 Oldfield Point Rd
Elkton, MD 21921

WHAT SKILLS AND QUALITIES ARE MOST IMPORTANT FOR A CONTROLS ENGINEER, AND HOW HAVE YOU DEVELOPED THEM OVER TIME?

"You have to have a good education in engineering fundamentals, you need to think logically, and you need to be able to communicate. Along with that, you need to remain teachable/open-minded to new ideas. I went to Naval Nuclear Power School and have a strong science, math, and engineering education. It goes without saying that to operate a nuclear power plant, you better be able to think logically. The one thing that Naval Nuclear Power School teaches you is how to learn and learn fast. Another critical thing to remember is that you don't know everything. So, it's good to know when to shut your mouth and listen. Learn how/when to rely on the team around you."

WHAT ROLE DO YOU PLAY IN ENSURING THAT APC SYSTEMS COMPLY WITH RELEVANT ENVIRONMENTAL REGULATIONS, AND HOW DO YOU KEEP TRACK OF CHANGES IN THESE REGULATIONS OVER TIME?

"Keeping track of the regulations can get challenging with a busy schedule. We get updated on the project requirements during our weekly project meetings. To ensure compliance, we review the functional sequences for each project. Once the FAT (Factory Acceptance Test) is completed and the unit is installed, we will retest all of the available sequences again."

HOW DO YOU COLLABORATE WITH OTHER ENGINEERS AND TECHNICIANS WITHIN AIR CLEAR TO ENSURE THAT THE APC SYSTEMS ARE INSTALLED AND MAINTAINED CORRECTLY, AND HOW DO YOU TROUBLESHOOT ANY ISSUES?

"At Air Clear, we have a well-run, productive project meeting each week where we review every job in detail. I work remotely, so I try to take advantage of this opportunity with everyone in attendance to plan, ask for, or give assistance wherever needed.

The biggest thing that helps for a smooth startup is our Factory Acceptance Test (FAT). We construct and then simulate the customer's process right on our shop floor. It's a great opportunity to meticulously inspect every aspect of the unit before it ever ships, testing all the program sequences to the maximum extent possible. This also allows us to do in-house training as well as any updates to the equipment or operating sequences before it's in the field."

443.245.3400
443.245.3407
2400 Oldfield Point Rd
Elkton, MD 21921

WHAT ADVICE WOULD YOU GIVE TO SOMEONE INTERESTED IN PURSUING A CAREER IN CONTROLS ENGINEERING, PARTICULARLY WITHIN THE AIR POLLUTION CONTROL INDUSTRY?

"Other than the obvious, like getting the proper education, it would be to understand what aspect of the career interests you. Personally, I like combining design and fieldwork. I also want an interesting control system that one person can handle. That is why I love working in the air pollution control industry. The projects are exciting, and the equipment we design and manufacture at Air Clear has real intrinsic value."

CONCLUSION

Control engineers like Andrew Wells play a pivotal role in the success of Air Clear's air pollution control systems. From start-up to maintenance, their expertise ensures that our systems are efficient, reliable, and compliant with all relevant regulations. If you're considering upgrading your facility's air pollution control systems or need top-notch control panel programming, look no further than Air Clear. Visit our website for more information on our services and solutions.

443.245.3400
443.245.3407
2400 Oldfield Point Rd
Elkton, MD 21921