

Putting safety first and foremost

Interview with AOV Program Manager Marie Murphy



It may be an obvious statement but they take safety very, very seriously at nuclear power plants. Equipment and processes are checked, checked and checked again to ensure the plant functions as it should. Even relatively straightforward items like air-operated valves (AOVs) can be covered by dedicated programs, run by dedicated engineers and technicians. On a recent trip to the USA, Valve World caught up with AOV Program Manager Marie Murphy to ask what her job entails.

By David Sear

AOV Program Managers enjoy an extremely wide variety of tasks and responsibilities. That much is immediately obvious after talking to Mrs Murphy for just a few moments. In charge for the AOV Program at the Columbia Generating Station in Richland, Washington, she lists her roles as establishing, implementing

and maintaining processes for the tracking, trending, testing, performing design calculations, organising maintenance and running outage preparation and implementation for AOVs. In addition, she has back-up responsibilities including Maintenance Rule Program coordination and the valve-

packing program. And from time to time she will also act as a consultant for colleague engineers with questions about manual or check valves. In this role Mrs Murphy probably spends the lion's share of her time seated behind a desk, although she is no stranger to working in the plant itself. "During the





Question Time

Valve World fired a series of quick questions at Mrs Murphy about her work.

How easy is it to find spare parts?
“Sometimes that can be a challenge. We went online in the early 80s, so most valves were bought during the late 70s. Many are now obsolete, so we can spend a great deal of time trying to figure out how to repair or replace faulty valves.”

Do you keep any spare AOVs in stock?
“We may sometimes do that, especially for equipment that is obsolete or hard to get. But it's expensive to keep a huge warehouse, so ideally we specify

equipment that is supported by the vendors with easy access to replacement parts..”

If the “nuclear renaissance” takes place, how will that affect manufacturing capacity for spare parts?

“We've actually been talking about that recently with the vendors because lead times now can be anywhere from six months to a year. So if and when the newly-planned sites start to break ground then lead times could possibly treble. So yes, that is a concern, but the vendors do recognise the problem.”

entity. “Like other equipment programs in a nuclear power plant, our AOV Program is there for a purpose. Simply put: to ensure the safety of all of the 1,200 AOVs at our plant. And it is very much a living programme. So we continually make changes and tweaks based on lessons learned. Our objective at all times is to ensure that the equipment is properly maintained and works reliably.”
Communication is the key

Whilst on the subject of maintenance, Mrs Murphy recalls a specific valve which has had her attention for a number of years. “This valve ensures minimum flow during start-up flow. We needed to iron out a niggling leakage issue, but despite following the maintenance instructions to the letter during a couple of scheduled outages were unable to improve its performance. At one time we were actually considering taking it out and installing a different valve design. However, I believe we have now found a better way forward.”

As is often the case, the solution came through communicating - this time with a fellow AOV Program Manager as well as with the vendor. Comments Mrs Murphy:

“A visiting AOV expert reviewed the valve history and saw parallels with a leaking valve at his own plant. He suggested we alter the set-up procedure. So we discussed this with the vendor last year and he came up with a modification to the internals. It's nothing major - the basic idea is to use bolts to clamp all the internals together for re-assembly. This will help overcome the difficulties of getting all the internals perfectly aligned, as the valve is actually mounted at a 45 degree angle. We are confident this will solve the problem and are looking forward to the next outage to put the theory into practice. This should be a simple but effective solution.”

Mrs Murphy is in fact a firm advocate of communicating and sharing ideas with others, whatever their role or expertise may be. “My advice would be to never, ever underestimate what technicians can tell you. We engineers often spend a lot of time in the office so it is all too easy to lose touch with what's happening in the plant. The technicians though are always out there. They can tell you a lot about valve and actuator performance. Even simple comments like 'that actuator

outages, when the majority of our diagnostic testing is done and most of our preventive maintenance is implemented, we're in the field probably 75% of the time. Normally though this is a managerial role, meaning that I monitor what is going on and make sure that the right steps are taken. So during non-outage periods I probably spent most of my time behind the desk, although I do go into the field as the need arises. I should note though that this is a boiling water reactor, hence there are fewer opportunities to perform on-line valve maintenance than there are in other plants.”

The key point that Mrs Murphy wants to emphasize, though, is that the AOV Program is far from being a static, fixed





sounds different today' can help you identify and sort out issues before they become headaches." Mrs Murphy notes that many technicians often spend their entire careers working in a single plant. "In consequence, they have a unique knowledge of the plant. They know what happened ten, fifteen or even twenty years ago, when this or that valve was modified or a procedure changed. So they have a wealth of knowledge that you simply can't access elsewhere."

At the other end of the scale, AOV Managers should also take an active role in industry-wide meetings, seminars and conferences, believes Mrs Murphy. She herself is a member of the USA [Utility Service Alliance] and has just signed up for a second, two-year stint on the AOV Steering Committee. "Our meetings are both enjoyable and valuable," she stresses. "There are networking opportunities, you get new insights from the presentations and there is plenty of opportunity to speak with vendors who you may otherwise only get to talk to by phone. I just want to make sure that we keep going forward and that we provide opportunities for the new people that are joining the industry. Why re-invent the wheel when you can connect with someone who has already solved a similar problem at his or her own plant?"

Going digital?

One of the issues currently facing engineers in a whole host of industries is the choice between digital or analogue equipment. Certainly, digital technology may have a lot to offer, but the picture

becomes less clear when a nuclear power plant is involved. Here, there is a natural tendency to stick with "tried and trusted" analogue technology, even if it may be several decades old. Mrs Murphy is seeing the implementation of digital technology in some power plants, but at a slower pace than elsewhere. "Yes, where appropriate we will consider using digital technology, but the norm is still to use analogue devices. I believe there are probably seven or eight plants using digital equipment right now and they are starting to buy more. Implementation requires establishing a proven track record and conducting sufficient up-front design work. At Columbia we have recently been allocated resources to conduct such design work, so perhaps we may be in a position to procure and install some digital equipment in the next couple of years."

Mrs Murphy is keen to acknowledge the active role played by various suppliers in developing digital technology. "I must give credit to companies like Fisher and Masoneilan. I know it can be hard to introduce new technology into the nuclear industry but they have made digital controls available and power stations are starting to benefit from that now. It can certainly make your life a lot easier. Vendors are also using digital technology to provide enhanced test equipment. Fisher for one has done some sterling work in developing diagnostics capabilities. That can really facilitate and speed up AOV maintenance. I am therefore sure that as confidence grows, digital equipment will be specified more

and more. Nuclear power plants are open to fresh ideas, especially those that can help ensure the safety and security of our operations."

About Marie Murphy

After taking a four-year apprentice programme for the department of the navy and working on submarines, Mrs Murphy has spent the subsequent fifteen years working in nuclear power plants. Initially in maintenance, she later passed the Operators Certificate and transferred to engineering. Following a three-year stint as maintenance supervisor she is currently the AOV Program Manager at the Columbia Generating Station in Richland, Washington.

When not in the office, Mrs Murphy enjoys spending time with her husband and five children, and also finds time to ski and ride her new Harley Davidson.



Committed to sharing AOV experiences with her peers, Marie Murphy takes an active role in various professional bodies. As the photo shows, this January she was presented with an award marking her first two years of service on the AOV Steering Committee.

