

THE NUCLEAR NEWS INTERVIEW

Jerry Schlessel: Obtaining and maintaining old equipment

After an absence of several years, the supply chain track returned to the ANS Utility Working Conference (UWC) in 2012 with a new name, Equipment Innovation and Supply, and judging by the attendance at the first session in that track, “The Increasing Challenges of Maintaining and Obtaining Old Equipment,” it had been sorely missed. A packed conference room greeted the session’s presenters, including the Tennessee Valley Authority’s Jerry Schlessel.

An electrical engineer by training, Schlessel has been involved in the nuclear industry for 30 years, the last 25 with TVA. He has held a variety of positions there, including lead engineer, preventive maintenance supervisor, electrical maintenance supervisor, maintenance programs manager, maintenance manager, electrical maintenance manager, maintenance and modifications manager at the Browns Ferry site, and construction manager at Browns Ferry-1 and Watts Bar-2. Currently, he is the construction manager at TVA’s Bellefonte-1, in Hollywood, Ala. Schlessel spoke with *NN* Associate Editor Michael McQueen regarding his presentation at the UWC—for the benefit of all those who couldn’t quite squeeze into the conference room.

Reprising themes from his presentation at the UWC in August, the construction manager at Bellefonte-1 takes a look at inventory challenges from a maintenance perspective.



Schlessel: “The major challenge is having the right materials available when you need them.”

The title of your presentation at this year’s UWC was “The Challenges of Maintaining and Obtaining Old Equipment.” Why that topic?

The construction manager is responsible for contracts, for all the craft workers, for maintaining the facility, and for building the facility. You have to know that you have enough material to ensure that your work control, planning, scheduling, and maintenance activities support your plant’s safe operation.

In a general sense, what is the major challenge of maintaining and obtaining old equipment, and how do you meet it?

The major challenge is having the right materials available when you need them. You can’t predict when a piece of equipment will fail or what part of it will fail. Understanding the criticality and the availability of materials is essential for sus-

tained, continuous operation of your plant.

In my presentation at the conference, I talked about what Maintenance and Modifications needs in an inventory. I was talking about the supply chain there—what does the organization need to do with respect to inventory, and what input do we need to provide to the supply chain people? And then, under that, what is the inventory based on?

And what is inventory based on?

Inventory is based on three things: actual usage, the expected life of the part, and the ability to get the replacement part. Those are the things you have to worry about. How often am I going to use it? How long will that part last? As a maintenance person, when you’re looking at your inventory, you need to be aware of and certain of how often something is used, how long that part will last, and the availability of the re-

placement. So if you have things in your inventory and use them 10 times a week and they’re always out there, you don’t worry about them. They’re usually low-cost items. You establish the minimum and maximum quantities that the supply chain people keep, and those items generally don’t ever become an issue. And the supply chain people can get them quickly if, for some reason, you have a high usage.

Then you have things that rarely break, but when they break, you’ve got to have them because they’re critical components. It could take six months or a year for you to get that part, so you need to make sure it’s in your inventory. Now, that part may not break but once every 10 years, so when the supply chain people are sizing the inventory and see something that’s hardly ever used, they will make note of that to the maintenance people. “You haven’t used this for seven years, can we surplus it?” they’ll

ask. As a user of that material, you had better know that you do use it, that it does wear

having that part. So you need to know your usage, how long parts last, and how quick-

“You need to know your usage, how long parts last, and how quickly you can get a replacement to make sure that you have the proper inventory mix.”

ly you can get a replacement to make sure that you have the proper inventory mix. And it’s incumbent on the maintenance personnel to be involved. Make sure you know your inventory and the mix of that inventory. If it’s not what you need, you need to fix the mix of that inventory.

out, that it wears out on a 10-year or 20-year frequency, that it’s a critical component, and that it’s going to take you a year to get a replacement, so no, don’t surplus it!

And that’s a hard thing to know. When you get that question, the supply chain people will say, “This thing costs \$10 000 and you haven’t used it in seven years. I can reduce our inventory by \$10 000.” But if you get rid of that component and later wind up needing it, you’re in trouble. Then you might have to buy it from another utility that kept it in its inventory and you find the price has escalated over the years, or expedite and run things around the clock, making design changes so that you can compensate for not

What would be an example of fixing the mix?

There may be something that you have in large quantities but use of which is minimal, so you reduce those quantities by surplus-ing them. You may have other items that are seeing higher usage but that you’ve kept at a lower quantity, so you need to increase that inventory level. You also have other options available to you—the Pooled Inventory Management industry group, for instance.

What is pooled inventory management?

Let’s say that five utilities use the same large motor, but no one can really afford to

keep a spare of that motor because it’s so expensive. But you all want to have it available, so you collectively buy one and keep it in a central warehouse. If something happens to your component in an emergency situation, you can then buy it out and use it for your facility. Then that item has to be replaced. If it’s not an emergency situation, however, you should be planning on buying your own. But if you’re a group member and you have something that you’ve bought into, and there’s a real emergency, then you have that item available.

You can also go out on RAPID, which is a supply chain system on the Internet that takes a look at all the inventories throughout the industry to see if the item you need is available at another utility. Of course, then you have to negotiate with that utility to sell you that piece of material or equipment.

Are there other avenues available to you for parts?

Yes—eBay, canceled plants, and users groups. I know it sounds funny when I say eBay, but if you’re missing a part, you type it in, and there’s a good chance that something that you can use will be there. It may not come with the proper paperwork, and you have to use the right, controlled processes to fix that. For instance, you may be able to use commercial-grade dedication to

allow for the use of that material, or you may be able to take a piece off of it and dedicate that piece. Those are a couple of ways to get to a solution for that problem.

I mentioned users groups. Nuclear plants have all kinds of users groups, some based on original equipment manufacturers. So if you're at a Westinghouse plant, you'll be in a Westinghouse users group. Or you may be in a users group for a type of equipment, such as motor-operated valves or a large-motor users group. There are all kinds of users groups, and those are also avenues for you to find the material that you may need.

This is all inventory from the maintenance person's perspective. Your supply

ties in product lines and start eliminating things. Based on your configuration control and design processes, that's not good for you because you have to replace like-for-like or make a design change. You've got to understand where the industry is going and what that does to you with respect to material availability, and you have to plan accordingly. That's a major issue.

When the current operating plants were designed or built in the 1960s or 1970s, there may have been a hundred different valve manufacturers. Now we probably go to three or four different companies to get our valves. They've all bought the smaller organizations. You've also dealt with vendors that were always close by and you had good service from them. But those companies have globalized. The engineering portion of their companies may be in India or South America or Germany. You have to deal with time-change differences when you're dealing with engineering issues to be able to get the right material, and there are language barriers because of the globalization. That's another

How do you deal with that problem?

We can deal with that by performing vendor audits, doing source surveillances and inspections while the equipment is being built, and participating in working groups.

What's involved in a vendor audit?

We're going to inspect a number of attributes of the vendor's quality control program—how they build the component, what specifications they use, what checks they perform. And a source surveillance is similar, but in that case, we're going to surveil that same vendor on our specific product as it's being built to be sure that it's being built to our specifications. With a vendor audit, we generally see how well they work; a source surveillance is how they're working on our particular component. And we do find problems once in a while. For example, we might expect a test to be done with a particular standard, and they might use a standard different from what we thought they would use. We then have to tell them what our expectations are because our standard test might reveal something that we're more concerned with than their standard test would. There may be nothing wrong with what they have chosen, but it's just not going to give us the level of certainty we're looking for on a particular purchase.

Also, I encourage any vendor who calls on us to leave us a business card. We never know when we'll need to go back to them. The other thing vendors can do to be helpful to the utility is to really understand the inventory we have. It's one thing for you to know your own inventory, but I've had vendors who can tell me every piece part I have that they've sold me and that I have in my system. They may not have something available to me, but they can tell me that they sold 10 of those to another plant six months ago and that I should check with them to see if they have it. That's a huge help. It will also prompt me to make sure I order that material from them. So there are some vendors who are extremely good at that. When I say vendors, it's also the manufacturers. They know everything I have in my inventory, as well as what they have available. That makes for a very good working relationship. I can't express how amazing it is that some of these guys have such a good knowledge of our inventories.

Put as simply as possible, what did you hope attendees would take away from your presentation?

That plants age, and that inventories need to reflect what's going on while the plant is aging. So we talk about fixing the mix and about modifying our plant to remove components, because if you don't continue to watch your inventory and keep it in compliance with your current plant configuration, you're not going to be prepared when a failure occurs.

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chain people have very specific, regimented things they're doing, but the involvement of the maintenance person in that inventory is crucial, to lessen your exposure to not having what you need when you need it. Restating it, the supply chain people will do typical warehouse things that are an important part of cost control, like reducing inventory on a part if it hasn't been used in five years. But the maintenance person will say, “I know we haven't used it in five years, but we put that thing in five years ago and the most critical part doesn't fail until a 10-year period. Don't surplus it.” They won't necessarily know that in the supply chain world, because that's not their focus. It is part of the focus in maintenance and modifications and that's what you have to know as the user.

You also spoke in your presentation about vendor product changes.

We have all these vendors who build things and supply things for us. That's all great and wonderful. And they're always going to call on us to sell us their products. But unfortunately, the industry keeps consolidating. There are fewer and fewer manufacturers. So your big valve manufacturers buy each other up, and you end up with fewer companies to go to. They look for similar-

ities in product lines and start eliminating things. Based on your configuration control and design processes, that's not good for you because you have to replace like-for-like or make a design change. You've got to understand where the industry is going and what that does to you with respect to material availability, and you have to plan accordingly. That's a major issue.

What would be an example of that?

An RTD—or resistance temperature device—measures temperature, and depending on the country for which it's built, it will have different color-coding. If you don't specify what you want, your craft workers are going to be trained to hook it up one way based on the color-coding they expect to get. If it comes in another way, then the readings aren't going to be right.

Vendors will also continue to try to save money on their production costs and will substitute materials. That may be fine for what they're doing, but it may not work for the design in your plant, so you need to be mindful of that. You have to make sure to specify that kind of thing when you're procuring items. Manufacturers don't stock items like they used to. You used to be able to call, they had it on the shelf, and they would send it to you. Now, if you don't order it often enough, that item may have a six-month or a year lead time, versus keeping it in inventory all the time. You have to know when they make those changes in their way of doing business.