Age Before Beauty, but Data Before Age

NDE/NDT PIPING AND VESSEL INSPECTION

I’ve been a mechanical contractor for 30 years, but seldom have I encountered a situation like the one I found recently at a dairy plant in Ohio.

I had been called in to repair a piece of equipment that was tied into their ammonia pipe system. When we pulled off the insulation to get access to a coupling that would serve as our end point, we discovered some rust that we traced to one of the worst looking pipes I had ever seen. Pitted and brown, it clearly needed to be replaced—in fact, it looked as though it should have been addressed some time ago.

I asked the plant manager if he could give me more information about this section of pipe, hoping to find out when it was last inspected and what notes had been made.

Alas, he was unable to find the inspection report he had received, but he told me Gamma Graphics Services (GGS) had examined the entire plant just three years prior. I had dealt with many of the GGS engineers in the past and found the quality of their work to be excellent, so it surprised me to think they would have missed something like this. A segment of pipe that appeared to be in such bad shape surely would have been detected.

I called Jim at GGS to see if he could provide some insight. He pulled a copy of the report and read to me the notes that had been made about this specific section. "We noted 7% wall loss, along with evidence of pitting and corrosion," he said.

"But you didn’t recommend replacing them?" I asked.

“Well, no. That wasn't necessary," he replied.

Clearly, Jim didn’t realize how bad the condition of these pipes was. “I think you need to take a look at these pipes,” I said, and I e-mailed some images over to him.

Would you replace these pipes if you discovered them in your plant? :}
Jim went on from there, noting that because of the change in the manufacturing process of pipe over the last 20 years, the existing, pitted old pipe might actually be more effective than the new pipe that we planned to install in its place.

“Even with the pitting, the remaining wall thickness on that pipe is more than you would have on a new section of pipe. If you simply cover that pipe in a protective gel and fix the breach in the vapor barrier, which you need to do anyway, you should see no additional corrosion on that section of pipe.”

There was a lot to consider here. Indeed, Jim was correct that any plant is going to do better with pipe that is more functional than it is beautiful. But it's not always easy to convince a plant manager that some ugly segment like the one we had was actually more functional than a shiny new one. It would much simpler and safer to go with conventional thinking and just recommend replacing everything that looks corroded.

Once we got our hands on a new copy of the report and reviewed the results of the inspection three years prior, it was clear that at that time there were other parts of the plant that were a much higher priority than the 7% wall loss in this section.

For example, another section of pipe along this line was identified by the report happened to be the cause of corrosion on this section—the breach in the vapor barrier Jim was referring to. Since this had been resolved at the time of reporting, we coated the pipe, re-wrapped it insulation and salvaged this piece.

I learned a valuable lesson that day that has helped me save many of my customers from spending unnecessary time and money—piping is one book you can't judge by its cover.

So look at the photo at the top of this piece one more time. Would you replace it? The common answer is an emphatic “Yes!”, the correct answer is “No.”