

Sanders: Giving Insulation Its Due

By Chris Linville

Significant energy consumption is unavoidable in industry. Automakers need energy to construct cars. Electronics firms need it to produce televisions, radios and computers. Appliance manufacturers need it to build refrigerators, stoves and dishwashers. And then you have companies such as Sunoco Inc., which provide the energy that helps all of those manufacturers create the goods that drive our economy. Of course, to produce its own products, Sunoco also needs to use energy.

However, even companies that make energy like to save it. And that's Mike Sanders' job. Sanders is energy coordinator for Sunoco Inc.'s Philadelphia Refining Complex. A 25-year veteran of the refining business, Sanders has overall energy responsibility for the Sunoco's Philadelphia Refining Complex. Together with the Marcus Hook refining complex about ten miles away, the two facilities comprise Sun's Northeast Refining. They are connected by several pipelines and operate as a single manufacturing unit. Sunoco is the largest fuels refiner and marketer on the East Coast, with its two refineries having a capacity of more than 500,000 barrels per day.

It goes without saying that in an operation of this magnitude, cost containment and energy efficiency are always vital to success, and Sanders is constantly looking for ways to improve the bottom line in energy use.

Recently, a renewed focus on insulation has become an integral part of the facility's efforts.

Sanders says, "We look at proper insulation on our heat exchangers and piping as a way of reducing fuel use in our furnaces and boilers. It directly correlates. If you're saving fuel in the furnaces, you're saving money, your reducing emissions and you're improving the process. It's just a win-win-win. It's pretty straightforward. You're reducing incremental Btu's required from your plant equipment, and that hits the bottom line."

According to Sanders, nearly \$1 million has been invested for insulation as part of Sunoco's energy program in the past three years. And he says it's not a one-shot deal.

"At Sunoco, insulation will always remain a critical component of our overall energy program" Sanders says. "It's easy to do, it's no risk and nobody's opposed to it. It will remain part of our program. There was a time, when it wasn't getting a lot of attention, but now we have stepped up our level of attention. It's part of the plant and it's part of the infrastructure."

Discovering Insulation's Value

Like many others, Sanders had some basic knowledge of insulation and refractory, but admits it wasn't at the top of his radar screen. That began to change in late 1999, when several of Sanders' colleagues attended a National Petroleum Refiners Association Manufacturers question and answer session, where

Star Spotlight

Name:
Mike Sanders

Company:
Sunoco, Inc.

Title:
Energy Coordinator



Background:
Total of 25 years experience in the refining business, with assignments in engineering, maintenance, inspection, reliability, operations and energy coordination (last 11 years)

Responsibilities:
Overall energy responsibility for the Sunoco's Philadelphia Refining Complex. Together with the Marcus Hook refining complex about ten miles away, the two facilities comprise Sunoco's Northeast Refining. Sunoco is the largest fuels refiner and marketer on the East Coast, with its two refineries having a capacity of more than 500,000 barrels per day.

Insulation investment:
Nearly \$1 million in the past three years as part of Sunoco's energy program, with payback periods within one year. Insulation will remain part of long-term energy program.

Why he endorses insulation:
"At Sunoco, we perform a three-step economic analysis of all projects as to how they contribute to our overall goals of safe, reliable, and environmentally responsible performance. Insulation projects are 'no-brainers' to us as they meet all of those criteria."

they spoke with a DuPont engineered services manager about insulation. They referred him to Sanders, and the following week, the two toured roughly a dozen of the refinery's operating units over the next two days.

"Boy, did I get an education about insulation," Sanders says. "I guess I was a little bit disappointed in how a good bit of it had deteriorated over time. I had not been in the maintenance department for 15 years. During that time we had probably pulled back on some of our spending on insulation, so the integrity and the extent of our insulation had diminished. It was nice to be able to work with the people at DuPont to really show me in detail what they were talking about. I wasn't qualified to be able to go out and

explain the value or the condition level of insulation.”

Sanders’ interest in insulation began to increase. He had just become involved with Steam Best Practices (SBP) through the Department of Energy (DOE), and started having discussions with representatives at DOE and the National Insulation Association.

“What we did was sit down and look at our own insulation standards and specs,” he says. “We saw that they were rather inadequate. So we decided to embark on trying to improve those, not only to improve them but get people to work using the standards as a guide.”

The DuPont representatives showed Sanders several areas that needed some significant improvement because they said that the insulation hadn’t been properly installed, and it had a very slim chance of still being there two or three years down the road. This revelation didn’t please Sanders.

“That bothered me,” he says. “Considering the kind of money we were spending to get that work done, it should hold up.” Sanders knew that management had some concerns as well.

“What I found was that nobody is opposed to insulation,” he says with a laugh. “It’s just where the priority is placed on it. The operations managers that I deal with on an almost a daily basis were all very supportive of improving the insulation and doing more of it, but they also had some concerns about how well things were insulated and why it wasn’t holding up.”

My opinion is that items like insulation and refractory are so poorly understood, and that people just think that they’re too busy to learn its value.

Getting Bang for the Buck

To find ways to increase the effectiveness of the insulation program at Northeast Refining, Sanders contracted DuPont to do three insulation surveys as part of a continuing improvement process.

“We determined that by doing ongoing insulation surveys, we developed a Best Practice,” he says. “You initiate a long-term program—five, seven years—so if we have 25 process units in our refinery here in Philadelphia, each one would be surveyed every three to four years. That may be overly idealistic, but we envisioned it as a Best Practice to have ongoing surveys followed up by the execution of the work that was identified.”

Sanders adds, “We have a finite amount of money to spend on insulation and other areas of our business—we want to get the best bang for our buck. We may decide conscientiously not to insulate some equipment. But we want to get the stuff that has the biggest bang. We envisioned it as a best practice to do surveys through all of our plants on an ongoing basis.”

Unfortunately, DuPont decided after about a year and a half that it was going to cut back on its insulation program. Luckily,

Looking to the Insulation Stars

For his efforts in promoting insulation, Mike Sanders of Sunoco Inc., has been selected by NIA as an “Insulation Star.” Each month in *Insulation Outlook*, we will feature end-users such as plant managers and facility engineers who have taken the initiative and recognize the value of insulation as an important aspect in saving energy and money, and reducing emissions. If you know of somebody—perhaps one of your clients—who has embraced insulation in the way that Mike Sanders has, let us know by contacting Chris Linville at (703) 683-6480, ext. 16.; clinville@insulation.org

Sanders was able to secure a back-up plan by securing the services of Win Irwin, president of Irwin Services and a veteran of more than 40 years in the insulation industry. Irwin was able to step in and continue the insulation surveys, and he has four additional surveys scheduled for the 2003 first quarter alone. Sanders is certainly appreciative of Irwin’s expertise.

“We’re happy to have Mr. Irwin working diligently at our facilities to insure that it’s done correctly and that we are insulating all of the proper things in a very cost-effective manner.”

Sanders explained some of the strategy and goals for producing successful and informative surveys.

“Refineries are a group of individual process units,” he says. “What we try to do is surveys on a unit by unit basis, instead of biting off more than we can chew. I believe in two things; you have to get strong support from the owners of the plant (operations manager, business manager of that facility or unit) and nothing works like success. If he or she supports what you’re trying to do, you’ll be successful. They will work with you to get it accomplished.”

Sanders continues, “In that regard, we first approached many of our largest units first—obviously because they exhibited the greatest potential for savings, the crude units and cat crackers (fluid catalytic cracking units, which produce gasoline) are our highest energy consumers. I knew that I had support from those operations superintendents in what we were doing. We went after them and did the initial surveys on the crude units throughout Sunoco and the cat crackers, which typically operate above 1,200 degrees (F). So that’s where we focused early on, and I was fortunate that we had good area managers on those units, who want to make it better.”

The support that Sanders enjoyed from the facility managers while conducting the surveys continued when he approached upper management for funding.

“At Sunoco, we perform a three-step economic analysis of all projects as to how they contribute to our overall goals of safe, reliable, and environmentally responsible performance,” he says. “Insulation projects are ‘no-brainers’ to us as they meet all of those criteria. These are also ‘no-risk’ projects, which benefit the process as well as the people, so, getting support for our insulation efforts wasn’t a problem at all. We presented some of the early assessment reports to our executive management and had an approval to proceed in a matter of minutes.”

Convincing Skeptics

Still, how do you convince skeptics that insulation can be an effective part of an energy savings program?

According to Sanders, "I think that's accomplished on several different fronts. One is to prove to people right away that insulation projects are extremely low risk and very attractive return on investment type projects."

He also points out, "From the standpoint of your own plant personnel, we push it from a number of different fronts. Obviously, there are the energy savings. And all of our area managers have energy targets, so they're looking at any and all help they can get to reach their energy targets. Then, there's improvements to the process that happen and you may or may not be aware of them because the lines or heat exchangers are now properly insulated, or perhaps the furnace isn't leaking trapped air into it. There are just subtle improvements to the process that we're all striving to achieve. Last but not least, is the inherent safety aspects, which should never be understated."

Sanders also says people should take the time—or make the time—to understand insulation.

"My opinion is that items like insulation and refractory are so poorly understood, and that people just think that they're too busy to learn its value—such as what types of material work in certain applications and what doesn't," he says. "I'm currently pursuing some opportunities in better refractory materials and I'm finding it's fascinating. For instance; how can we do online repairs of heater refractory and boiler refractory and that sort of stuff? It's

pretty interesting when you start digging deep into it."

Along with his interest in refractory, Sanders says he tries to stay on top of other news and trends that may benefit his company. He's continued to work with NIA, along with the DOE Steam Best Practices and its Office of Industrial Technology to learn more about what's going on within industry as far as energy efficiency and emissions.

"These two groups are a tremendous resource to those of us in industry and the institutional areas who don't have the time to 're-invent the wheel' every time we face a problem," Sanders says.

He also makes it a point to give credit for a job well done. "When I see some insulators who have done a pretty nice job, I'll go over and tell them what a nice job it is," Sanders says. "It's kind of amazing the reaction you get out of people when they're told that they are appreciated. And I recognize that we have some insulators who have done some incredibly good work."

Sanders concludes, saying, "For too many years, good insulation practices have been overlooked throughout industry in general, and the refining industry was no different than any other. Now people realize that insulation is important to all of us. It's not something that we should just take for granted. I think some of the best compliments we have received, to date, have come from our own employees and the contractors who realize that somebody cares about the facility." ☺

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