



Jacobs: At the helm of Wolf Creek

Donna Jacobs more than a year ago achieved what no other woman in the United States had ever accomplished: She became plant manager of a nuclear power plant. (That achievement has since been equaled by Susan Landahl of Exelon Nuclear—see sidebar.)

An interest in math and science led to a career in nuclear power, and a position as plant manager of a nuclear power plant.

Jacobs was named plant manager at Wolf Creek on June 9, 2001, after a diversified climb up the career ladder. She started at Wolf Creek in July 1986 as test engineer of results engineering, and followed it up with a succession of promotions to supervisor of results engineering, superintendent of mechanical maintenance, superintendent of maintenance planning, assistant manager of maintenance, manager on rotation in control-room operations, manager of support engineering, and manager of integrated plant scheduling.

Although becoming plant manager was never a career goal, Jacobs said she was drawn to nuclear energy because of its ability to improve the quality of life for the general public. She thinks the future will see an increase in female plant managers because more women are entering technical fields.

Wolf Creek, in Burlington, Kans., is a 1235-MWe (net) Westinghouse pressurized water reactor. The unit is operated by Wolf Creek Nuclear Operating Corporation.

The interview was conducted by Rick Michal, *NN* senior associate editor.



Jacobs: “Energy production impacts us in a positive way.”

What interested you in a career in nuclear energy?

I studied mechanical engineering in college, which was a field that included both math and science—things I really like to do. As I was trying to figure out what part of mechanical engineering to get into, I looked at careers that involved ways to improve our quality of life. I think energy production is something that really impacts us in a positive way. We have a good society, and many things we enjoy are because we have electricity. I discovered that nuclear power fell right into place with my interest in electrical generation and my chemistry background. Since I knew someone who worked at Wolf Creek, I visited the site and toured the plant. It was then that I decided I wanted to work in nuclear power.

Was becoming a plant manager a career goal for you?

No. I came to Wolf Creek with an interest in working in areas that could make a difference in plant operations, such as improving the plant’s performance in whatever process or program I was working on

at the time. That’s where my focus was. Through that and my ability to work well with people, I was promoted into different positions and eventually became the plant manager.

The nuclear energy industry traditionally has been male-dominated. Do you think more women will be joining the industry?

I think so. In fact, even now there are more women becoming involved in nuclear power. I think part of the tradition of nuclear being more male-dominated is due to the influence of the nuclear navy. But since I’ve been at Wolf Creek, and especially in the last 10 to 15 years, I’ve seen more women enter technical fields, and thus more women in the nuclear industry.

Does Wolf Creek offer summer internship programs, and if so, are you seeing more female students involved?

We have an engineering co-op program that involves bringing a mix of engineering students, both male and female, to Wolf Creek. The program officially runs through the summer, but we prefer to keep the stu-

dents for an additional semester so they can get a better understanding of the industry.

How important is mentoring by female nuclear professionals in furthering the careers of younger women in nuclear?

When talking about mentoring in general, I think it’s important to help people identify where improvements are needed, such as how to do business, how to carry oneself, etc. Mentoring is especially important for females from the networking perspective because nuclear is male-dominated and there are different challenges for women. For example, many times it’s balancing home life with work life. From a mentoring perspective for women, I think it’s important because a woman can talk with someone who has worked through some of these same challenges.

Do professional societies have encouragements for women in engineering?

Yes, I have seen it. There is a group called Women in Nuclear (WIN) that’s been very positive, especially from a networking perspective. WIN promotes more than the pow-

er side of the industry; it promotes the nuclear industry as a whole. It helps open up career development and mentoring programs for women involved in the nuclear industry by bringing together women from a variety of locations and industries.

What needs to be done to get more female nuclear engineers and scientists in the work place?

It all goes back to the school systems, especially grade school and middle school. It is there that females should be encouraged to get involved in math and the sciences. Sometimes it's not "cool" to be in a math course or science course at that age, but I think it's important to promote these fields, regardless of whether students are male or female. A positive introduction to math and the sciences allows students to develop an interest and see if those fields are areas they want to pursue. Once young students get into these courses, there will be natural development where we'll see them taking math and science in college and getting into engineering or technical fields. But we have to start when the students are young.

In your experience, have college students had a perception that nuclear energy was no longer a relevant industry?

Some still have that impression, but I saw more of it five to 10 years ago. I think the nuclear industry has done well promoting itself the past few years, and plants have performed and operated well during this time. So the industry has seen an increase in interest from students. Also, with existing nuclear plants receiving license renewals to operate an additional 20 years, and with the potential of new plants being built, students can see that the industry offers feasible, long-term career plans.

Do you expect to see more female plant managers in the coming years?

Yes, I definitely do. I think it ties back to the amount of time it takes for anyone to come to the industry and learn it from a technical viewpoint. This includes operations, maintenance, and all the other different perspectives that need to be learned for someone to be able to be a plant manager. It's just a matter of working through that. There are women today who are operations managers, maintenance managers, assistant general managers, etc., so I think we're going to see more women plant managers in the near future.

How has Wolf Creek senior management supported you since your start as plant manager?

They've been very supportive, and I don't think it would matter if I were female or male. It's just been a matter of me coming in and doing the job, and senior management supporting me all along the way.

What are your biggest challenges as plant manager of Wolf Creek?

I look at that from a technical side and a personal side. On the technical side, there are initiatives we are trying to accomplish, such as implement a new behavior-based safety process. There also are some of the same goals that every plant has, such as reducing outage duration, reducing collective radiation exposure, and increasing human performance. So, those are technical challenges that all plant managers must face.

From a personal perspective, the biggest personal challenge is balancing the home life and the work life. I really enjoy what I do here at work, so sometimes I put in a few too many hours. Fortunately, my husband keeps me straight on that.

You mentioned a behavior-based safety process. What is that?

A behavior-based safety process is an employee-driven, management supported process that focuses on safe behaviors. We use a peer observation process to identify safe and at-risk behaviors. Observers attend a two-day training session to learn about our critical behaviors, which are those behaviors that have contributed to accidents in the past, and to learn how to provide feedback in a positive manner. For example, as a trained observer, I would ask a plant worker if I

could perform a behavior-based safety observation of the worker on the job. If the worker wasn't familiar with the process, I'd review it with him or her. At the end of the observation, I would discuss with the worker each safe behavior I observed. By positively reinforcing safe behaviors, these behaviors are encouraged to be continued. We also would talk about any at-risk behaviors that were observed. I would want to get the worker's concurrence that the behavior, if continued, could lead to an accident or injury. I'd engage the worker in a discussion to determine what could be done differently in the future to make it a safe behavior. By increasing our safe behaviors, we are making Wolf Creek a safer place to work.

What other initiatives have you established since becoming plant manager?

We've developed action plans to address those goals that I talked about, such as reducing our radiation exposure. Our station personnel have worked hard to develop what needs to be done differently to reduce dose. For example, we finished our twelfth refueling outage in March. The previous outage had been our lowest dose outage at 135 rem and we were able to achieve the twelfth refueling in about 95 rem. That was a significant reduction. A lot of the dose reduction came from talking with our per-

Exelon Nuclear selects new plant manager

Susan Landahl was named plant manager of Exelon Nuclear's two-unit LaSalle County in October. She becomes the company's first female plant manager and the second woman in the United States to become manager of a nuclear power plant. Donna Jacobs was the first to attain that accomplishment, at Wolf Creek Nuclear Operating Corporation's Wolf Creek in June 2001 (see accompanying article).

"Susan's demonstrated leadership ability and drive for quality results make her an outstanding choice for this senior leadership role," said Jack Skolds, president and chief nuclear officer of Exelon Nuclear.

Landahl is responsible for LaSalle County's overall day-to-day operations, which includes operations, maintenance, work control, chemistry, security, and radiation protection.

Before being named plant manager, Landahl was assistant plant manager at LaSalle County. Prior to coming to the

plant, she was director of generation support for Exelon Nuclear's Midwest Regional Operating Group (ROG). Landahl also was director for radiation protection for the Midwest ROG.

Landahl's industry experience includes more than 10 years of service with Boston Edison Company, where she held management positions in operations, engineering, and radiation protection. She earned her senior reactor operator's license at the Pilgrim nuclear plant (which at the time was operated by Boston Edison) and her health physicist's certification from the American Board of Health Physics.

Landahl earned a Bachelor of Science degree in nuclear engineering and a Master of Science degree in nuclear engineering/health physics from the Massachusetts Institute of Technology.

LaSalle County, located in Seneca, Ill., has a pair of 1140-MWe (net) General Electric boiling water reactors.



Landahl

sonnel about the importance of reducing exposure.

I can relate one story I'll never forget. We were in our kick-off meeting to develop our dose-reduction plan. Our radiation protection manager had invited a cross-disciplinary team—we had an electrician, a mechanic, a health physics technician, an engineer, and an operator. We were talking about how to develop our dose-reduction plan. The electrician, someone who I've known for years, said, "You know, no one ever told me that every millirem was important." We were dealing with people who had been here since the plant first started up who had that same opinion as the electrician. During the startup phase and early outages, we would pick up five millirem per entry and think nothing about it. Once we communicated the message that every millirem counts and is important to our radiological safety, our work teams started looking at their jobs in a different light. They started coming up with ideas and implementing ways to reduce dose.

What is your area of expertise as plant manager?

People probably associate me with maintenance and work controls, but really I have a background in a lot of different areas. I started out in engineering, went to maintenance and was promoted to mechanical

maintenance superintendent. Then I went to maintenance planning, then to operations, back to engineering, then to work controls and outage management. So you could probably say that I'm a jack of many trades.

You have a great interest in computers. Can you talk about that?

When I first came to Wolf Creek, I was amazed that we didn't have computers, because I came from an engineering school where we used them. As computers were introduced to Wolf Creek, it made our jobs so much easier. It used to take a lot of time to run engineering calculations, compared with the time it takes to plug information into a computer and let the computer do it. Today we now can spend time looking at ways to improve the process by interfacing with people who are involved with the process. I think computers allow us to free up our time to tackle the issues we need to focus on.

Are you planning any future upgrades in your operations, procedures, training, or equipment?

We are always looking for ways to improve our performance. In operations, we continue to evaluate our standards and expectations and performance. We use feedback from training, from on-shift performance, and from benchmarking other plants to identify areas for improvement. One of

our most recent initiatives is improving our prejob briefing process. We plan on rolling out a new method in operations and then taking it to maintenance and other work groups.

From an equipment perspective, we look for ways to increase our equipment reliability and efficiency. For example, we're planning to implement a simplified reactor vessel head modification. The design we currently have for our vessel head, with its duct work and layout, takes an extensive amount of time for disassembly and reassembly during our refueling outages. Other plants, like Byron or Braidwood that are Westinghouse pressurized water reactors, have a simplified head design where the duct work is integral to the vessel head and they don't have an extensive assembly and disassembly process. We've been working with Westinghouse on a design modification. Westinghouse did something similar at Seabrook, and we will be implementing a similar design during our next refueling outage in the fall of 2003.

We're also looking at replacing our main steam isolation valves and feedwater isolation valves with a different type of component that is more reliable. This is another major equipment reliability project for us.

As a lone nuclear power plant out there in a world of larger operating companies, do you have trouble attracting employees and keeping them?

No, we haven't had that problem. We have a very low turnover of our permanent employees. What has been very beneficial for us is being a part of two nuclear industry alliances: USA (Utilities Service Alliance) and STARS (Strategic Teaming and Resource Sharing). USA consists of Columbia generating station, Cooper, D. C. Cook, Fermi, Ft. Calhoun, Susquehanna, and Wolf Creek. STARS is an alliance of similar type design pressurized water reactors in the NRC's region IV and consists of Comanche Peak, Callaway, Diablo Canyon, Palo Verde, South Texas Project, and Wolf Creek. Involvement with these alliances helps prevent us from being viewed as a lone nuclear power plant. We have experienced many benefits from participating in these alliances, some of the benefits being reducing costs through shared tools and equipment, through common contracts and through resource sharing during refueling outages.

As far as attracting contractors, this is definitely an area we are working on. Larger corporations that have multiple units can sequence their refueling outages one right after the other. This allows them to bring in contractors and move them from plant to plant. So if contractors are looking at outage durations that are getting shorter and shorter, it can be more appealing for them to work for a larger organization where they have the potential for a longer contract. However, one

of the advantages we have at Wolf Creek is our excellent work environment. Many times contractors choose to come back here because they feel they were treated well and because we have excellent facilities.

How have you worked out ways to control or reduce your budget?

This continues to be a concern for us, and we've been paying a lot of attention to cost control. One of our priorities is making sure that the plant runs well. To reduce costs, we have to produce electricity with minimal forced outages, reduced refueling outage durations, and have equipment that runs well. We've had strong equipment performance and we continue to make that a priority.

Many times, reducing costs is about looking at processes and how to do things more efficiently. We've also reduced the number of contractors that come on site. Ten years ago, we were more reliant on contractors for day-to-day planning and work. Today, however, nuclear power plants have reduced the amount of contractors on a day-to-day basis.

What is the condition of Wolf Creek's vessel head?

We were preparing for our twelfth refueling outage in March when the issues on vessel head leakage and inspections to iden-

tify leakage arose. We performed a full reactor vessel bare head inspection with a remote camera. We found no flaws and no indications.

As part of the susceptibility study that was performed in the industry, Wolf Creek falls into the category of least susceptibility to this degradation mechanism. We will continue to adjust our inspection methods and frequencies as the industry learns more about what happened.

Has your job changed in any way since September 11?

Initially following September 11, my job changed quite a bit, especially with my involvement with plant security and making sure we had the proper measures in place. There always has been a lot of security in place at nuclear plants, but when the industry went into its heightened security awareness, additional measures were required to make sure we were taking the right precautionary measures and had the manpower to support them. Since then, with the NRC's order on security, the additional security has become a way of life for us. We've made adjustments, just like other nuclear power plants, that include increasing security staff. We also have changed some security procedures, based on the new threat environment, to provide an additional level of security for this kind of situation. ■