

PEOPLE

Karina Lopez-Rangel of Bechtel

A new nuclear waste treatment plant is arising on the scrub brush desert terrain along the Columbia River in southeastern Washington State. And there to ensure its structural stability during construction is civil engineer Karina Lopez-Rangel. "I inspect the concrete walls as they go up, one by one," she says.

Rangel, whose job title is field engineer II, works for Bechtel National, a business of Bechtel Corp (San Francisco, CA). Bechtel is a global engineering, construction, and project management company that specializes in complex projects at challenging locations. The waste treatment plant is part of the U.S. Department of Energy's Hanford Site cleanup project, one of the largest federal capital projects currently under way.

For fifty years, Hanford was the primary U.S. production facility for weapons-grade plutonium, but production was halted in 1989 when the Cold War ended. The project goal is to stabilize the 200 million liters of radioactive and chemical waste that remain at the site. The new Hanford waste treatment plant will process and immobilize the waste for safe, long-term storage for more than 10,000 years.

Rangel has been working on the project since February 2005. Her job is to inspect the newly-installed concrete to ensure that design specifications are met. She likes working outside and being part of a team. "I go out at least once a day to inspect the slabs or walls assigned to me," she says.

Her daily routine involves safety briefs in the morning, then putting together a work package of documents that she completes in the field during her inspections. She enjoys interacting with the skilled craft workers at the site and seeing tangible accomplishments. Her biggest challenge is multi-tasking as she juggles oversight of several concrete walls or slabs.

Although the construction arena is predominantly male, Rangel says she's been treated respectfully and "just like any other guy." She notes that the male

environment is nothing new for her. "I've been surrounded by men since my first class in civil engineering," she says. "I expect it to be like this throughout my career. Of course I hope to see more women in this field in the future."

Concrete interests her because she ends up with a finished product that she can see and touch. While some people say, "It's only concrete," she marvels at its strength. "It's an amazing material that's used all over the world!" she says. "It's spectacular to see structures I helped design."

As a kid, Rangel was always trying to figure out how things worked, "so I knew early on that I'd be an engineer." Inspired by her two older brothers, she gravitated toward their chosen field of civil engineering. "I really enjoy building and fixing things," she says.

Rangel's parents immigrated to Oregon from Mexico before she was born. She was raised in Kennewick, WA, close to the Oregon border. She grew up speaking Spanish and English, so happily participates in Spanish conversations at the work site.

In high school, Rangel enrolled in a program that introduced students to engineering. One of the sponsoring companies was Bechtel, and she did two high school internships there. She became even more familiar with Bechtel as a college intern and liked the company's size: a multi-billion dollar corporation with over 40,000 employees. "By the time I came on board, I already knew several employees," she says.



Rangel graduated from Washington State University (Pullman, WA) in 2005 with a BSCE and immediately joined Bechtel National as a design engineer. In her spare time she works with the Hanford project's recruiting team, visiting schools to promote careers in engineering. "I share my story in hopes that it will encourage others to enter the field, especially young women," she says.

Rangel prefers to talk to students before they choose a career path or college. "I tell the girls in math classes that engineering is a great career," she says. *D/C*

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