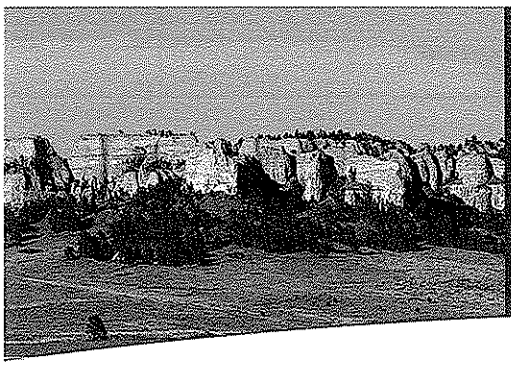
UPDATE TO THE COMMUNITY

# 7 ESSENTIAL FACTS ABOUT THE CROW BUTTE URANIUM MINE

*NUCLEAR. The Clean Air Energy.*

Cameco



We're proud of our environmental performance.

# 22 YEARS OF COMMERCIAL OPERATION

**Some people are surprised it's been that long. But it was 1991 that we began the commercial production of uranium here in Dawes County. Many years of exploration… and testing… and operating a pilot plant preceded operations to assure Nebraska that we could protect the environment and produce safely. We've kept that promise.**

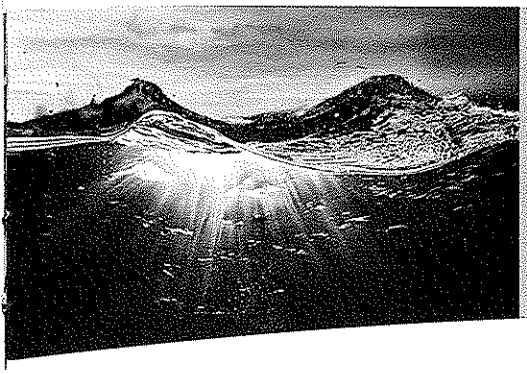
Keep reading and you'll learn about all of the steps we go through to protect the land and water. It's a stringent, successful program that ensures water and good lands are available for generations to come. And, all the while, we're producing a product that reduces greenhouse gases by providing clean-air electricity for our state and our nation.

We need to continue adding resources for Crow Butte to remain viable. We have three crucial expansion sites you can read about on the back cover. Thank you for your support all these years. We're all looking forward to many more to come.

Doug Pavlick
General Manager
July 2013

**For more information: www.cameco.com/usa**

Photo, above right: Doug Pavlick, center, accepting Cameco's highest safety honor.



No contaminants from operations have ever been detected downstream from the mine site.

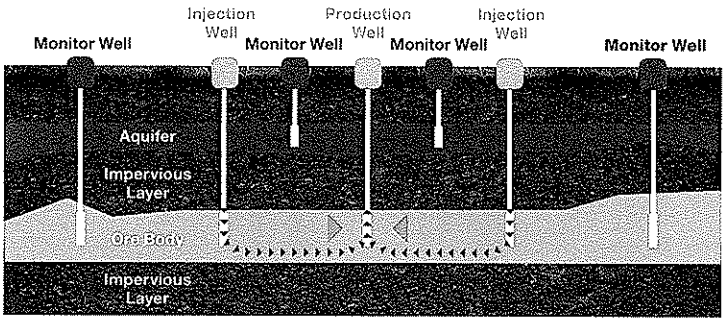
# 9,700 WATER SAMPLES

# EVERY YEAR TO PROTECT OUR ENVIRONMENT

Uranium is recovered at Crow Butte through the *in situ* process. There is no waste rock or tailings. Uranium is extracted from underground by pumping native groundwater mixed with small amounts of oxygen and bicarbonate (baking soda) into the ore zone. The uranium is freed from a sandstone formation and pumped to the surface for processing.

Crow Butte has more than 375 monitor wells that are tested at least every two weeks. Every year, about 9,700 water samples are analyzed. The purpose is to ensure any potential issues are kept on the mine site and in the ore zone – and do not affect our neighbors.

Crow Butte has never been cited by any government agency for polluting any well off the mine site in any way. The Nebraska Department of Environmental Quality regularly tests surface waters, and in 22 years of commercial operation, no contaminants from operations have ever been detected downstream from the mine site.




A solution of water, oxygen and baking soda is injected into the ore body, **which causes the uranium to detach from the sand and flow toward the production well.**

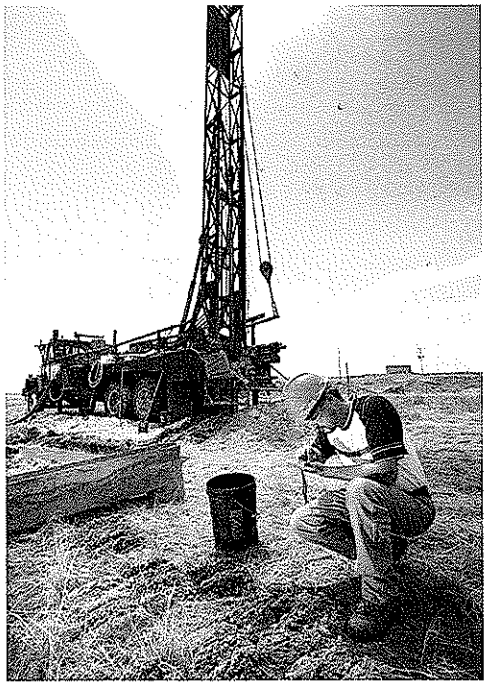
It is then pumped to the surface, **where the uranium is removed and the water is injected back into the ground to repeat the cycle.**

**Monitor wells are placed inside and outside the production area.**

**These wells make sure the drinking water hasn't been affected and the solution hasn't migrated away from the production area.**

The water we pump is continually recycled.

# AVERAGE ANNUAL WATER CONSUMPTION EQUAL TO 225 ACRES OF CORN

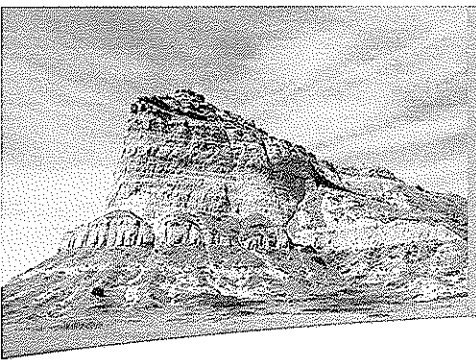


**For mining, Crow Butte only accesses portions of deeper aquifers unsuitable for drinking water. The shallow Brule aquifer, from which the area draws drinking water, is not affected.**

The water we pump is continually recycled except for 1 or 2% that is bled off to ensure groundwater flows toward our wells and remains on site. Because of this recycling, Crow Butte's annual water consumption is roughly equal to the water consumed by 225 acres of corn under circle irrigation – about 1-½ pivots.

When done mining, our operations are required to clean the water and to restore the aquifer to at least the same class of use that it was before mining. Land that was disturbed to build access roads and well fields is managed to control dust and storm-water runoff, and to preserve top soil. When a particular well field is done producing, the land is reclaimed by restoring natural contours and vegetation.

Photo, above: inspection at a well field.
Photo, above right: A well field at Crow Butte.



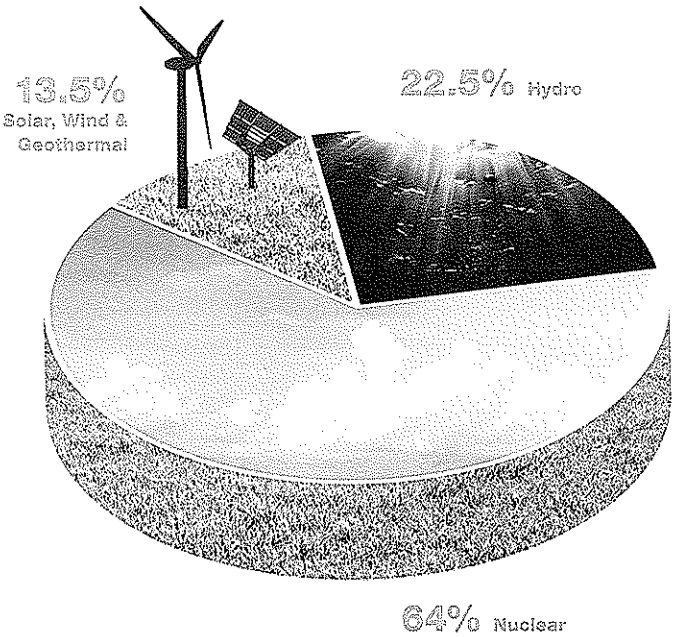
Nuclear Energy continues to grow because of its clean-air benefits, reliability and long-term cost savings.

# NUCLEAR POWER PLANTS EMIT ZERO GREENHOUSE GASSES

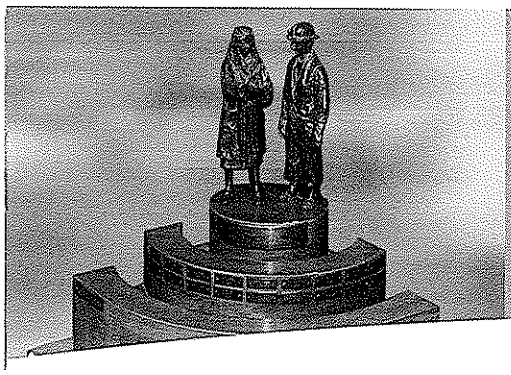
Nuclear power provides nearly 20% of America's electricity, which means, on average, 1 in 5 homes and businesses rely on uranium fuel. The U.S. has 100 nuclear generating units, including two in Nebraska – more than any other country.

Nuclear energy continues to grow in much of the world. Worldwide, nuclear generating capacity is expected to increase about 30% by 2022. One of the reasons for this growth: many nations see the clean-air benefits of nuclear energy – along with its reliability and long-term cost savings.

**U.S. EMISSION-FREE ENERGY 2012**



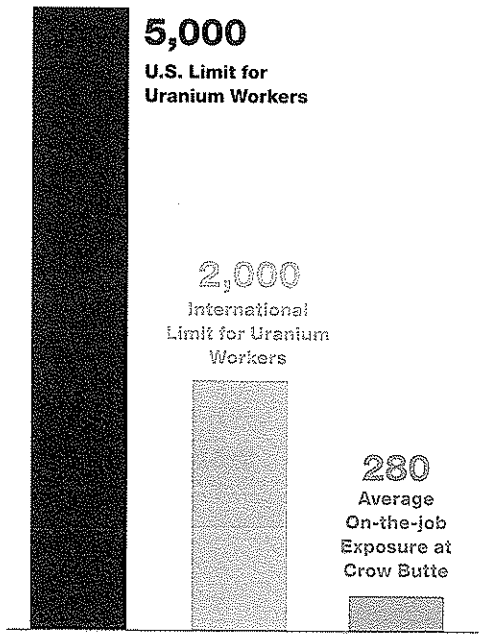

Photo, above right: Crow Butte's Rhonda Grantham.
Chart: Nuclear Energy Institute (www.nei.org)



Crow Butte is the current holder of Cameco's highest safety honor.


# ONE MILLION WORK HOURS
# WITHOUT A LOST-TIME INJURY

**RADIATION EXPOSURE**
Measured in Millirems




It's been more than eight years since the last lost-time injury (an injured foot) of any kind at Crow Butte. Since that time, employees have surpassed one million work-hours.

The culture of safety that exists at Crow Butte is one reason the mine is the current holder of Cameco's highest safety honor: the annual Mary-Jean Mitchell Green Award. The award is named for one of Cameco's original board members who was keenly interested in advancing the health and safety interests of employees.

"Making sure that everyone goes home safely is the most important thing we do," Cameco's CEO told employees when he visited to present the honor.

Photo, above left: Crow Butte is the current holder of Cameco's highest safety award among all operations.
Photo, above right: Workers perform maintenance on an in situ well site at the Crow Butte Mine.

Most Cameco employees are long-time, active residents of the area.

# 22 MILLION DOLLARS
# EVERY YEAR FOR THE ECONOMY

**Crow Butte has more than 70 full-time employees and contractors.**

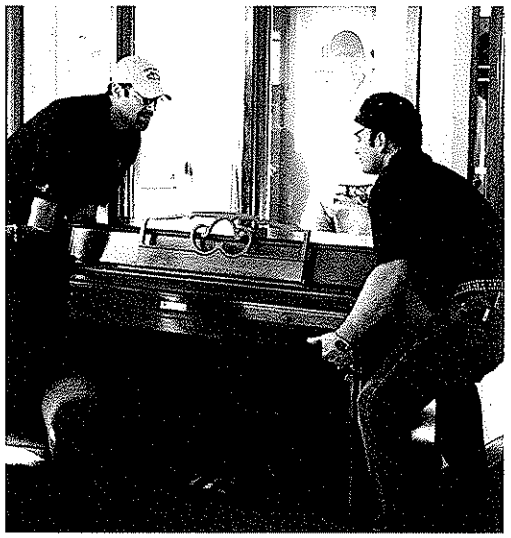
Direct payments by Cameco in payroll, local purchases, taxes and royalties – plus the dollars from Cameco activity that circulates through the economy – results in a total annual economic benefit to Nebraska of:

**191 jobs**

**$22.1 million in payrolls, purchases, taxes, royalties, etc***

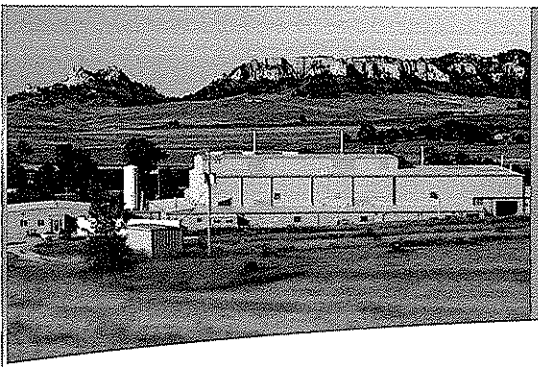
Thanks to our employees' volunteer hours and their individual donations, Cameco has been able to support:

- Crawford Volunteer Fire Department
- Virgil Couch Toy Run
- Crawford City Park
- Crawford High School
- Ponderosa Village Nursing Home
- Chadron Community Hospital
- Veteran's Honor Flight program

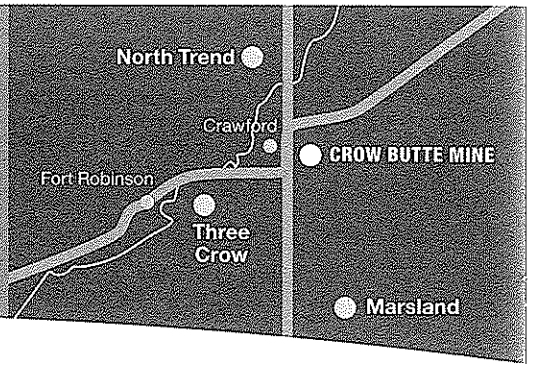


Photo, above right: Crow Butte employees help remodel Crawford's Ponderosa Villa nursing home.

**Analysis conducted for Cameco's Wyoming and Nebraska operations by the University of Wyoming Department of Agriculture and Applied Economics.*



The uranium deposit at Crow Butte is finite.



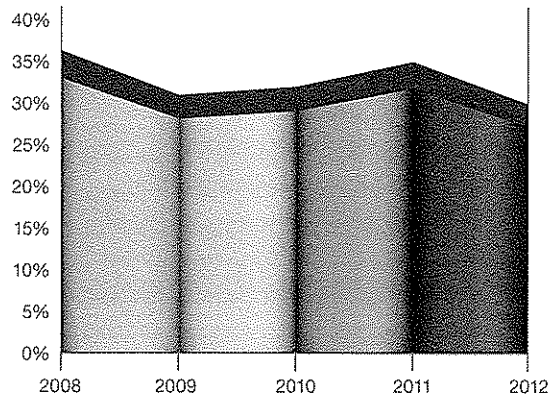

# 3 EXPANSION SITES

## ARE CRUCIAL TO CROW BUTTE'S FUTURE

**The uranium deposit at Crow Butte is a finite resource. To keep the central processing plant operating for decades to come, new ore sites have to be developed soon. Three expansion sites are proposed, all within several miles. Material from the three sites will be transported to the central plant at Crow Butte for final processing.**

Approval of the three new sites, as well as the regular renewal of Crow Butte's standard operating license, are under review by the US Nuclear Regulatory Commission. As needed, the NRC or state will schedule local public hearings on Crow Butte's licensing or permitting issues. We encourage everyone in the community to stay informed about our operations.

**Percent of Crawford Schools Budget from Crow Butte**




Tax revenue from Crow Butte historically has provided about 1/3 of Crawford Schools' budget, but will decline sharply without new sites

*NUCLEAR. The Clean Air Energy.*

Cameco