

Cold War left legacy of pollution across Cheyenne

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CHEYENNE - Frank Carr was a young airman when the Cuban missile crisis gripped the nation in 1962.

His task during that terrifying Cold War episode was to help fuel and prepare nuclear missiles for attack.

Afterward, he and other airmen flushed the missiles with a powerful industrial solvent and dumped the solvent, called trichloroethylene, or TCE, into unlined pits, where it slowly sank into the ground.

"That I can remember, we never made any effort to recover any of the (solvent) that we purged through the engines," Carr said in a video posted on the Wyoming Department of Environmental Quality Web site.

That unwitting pollution continues to haunt Laramie County and Cheyenne, as a portion of the city's drinking water remains tainted by TCE.

Despite the impact on the community, and the potential cleanup costs, the story of how one of the largest underground plumes of industrial solvent in the nation got into the soil around Cheyenne is not well known.

"I don't know why this isn't national news," said Jane Francis, a geological supervisor with the Wyoming Department of Environmental Quality's Water Quality Division who oversees the state's interests in the spill site.

America was deep in the Cold War when the United States built about a dozen Atlas nuclear missile sites in Wyoming, Colorado and Nebraska in the late 1950s and early 1960s.

The intercontinental ballistic missiles, the first in the American nuclear arsenal, were 82 feet long, liquid-fueled and designed to carry a devastating nuclear warhead across the Atlantic at a speed of up to 16,000 mph.

F.E. Warren Air Force Base in Cheyenne was the command center for the missiles, which were maintained around the clock by young airmen stationed at the base.

During routine readiness exercises, airmen raised the missiles from their horizontal resting places inside thick-walled concrete bunkers to a vertical launch position and fueled them with kerosene and liquid oxygen.

When raised, the missiles towered over the surrounding prairie and flashed unmistakable signals of America's military dominance to Soviet spy satellites that might have been peering down from above.

After each exercise, the liquid fuel was pumped back into an underground storage tank and the missiles were flushed with TCE, a synthetic solvent popular at the time with industry and the military for its ability to cut grease.

The TCE was subsequently dumped into unlined waste channels extending behind the missile sites called flame pits or burnout pits, where it disappeared into the ground and entered the shallow water table.

Opinions differ on how much TCE was dumped at the former missile sites.

Anecdotal estimates of the number of refueling exercises range from two to six times per year, and TCE quantity estimates range from 25 to 300 gallons per exercise, the report says.

During the Cuban missile crisis, however, the number of readiness exercises increased to several times per week, and, by extension, the amount of TCE dumped onto the ground soared, according to the report and other government documents.

"Based on these estimates, the amounts of TCE used per year were calculated to range between 50 and 1,800 gallons per year," says the report, which notes that the site was operational from 1961 to 1964.

"Therefore, between 800 and 5,400 gallons of TCE may have been released per launch area," the report says, or up to nearly 38,000 gallons of TCE at all seven missile sites in Wyoming.

In retrospect, the dumping of tens of thousands of gallons of a cancer-causing chemical onto the ground seems like a major folly. But at the time, TCE was thought to be safe, and dumping was thought to be a proper means of disposal.

"It was standard practice at that time to dump it on the ground," Francis said.

Partly for that reason, TCE is the most widespread water contaminant in the nation. Florida, Texas, California and other states are also plagued by large TCE spills.

In Laramie County, the TCE entered a deep aquifer and over the next 50 years traveled along underground channels of crushed granite toward Cheyenne.

Some of that TCE has tainted city water wells and private wells in the area. A giant plume of TCE continues to pulse through a major underground aquifer on a route that could someday pass under a section of Cheyenne.

Estimated to be up to 10 miles long and 300 feet deep, the TCE plume is a lasting legacy of the Cold War that young airmen like Carr, who was doing his duty to keep the nation safe from nuclear attack, could not have anticipated.

"At the time, I never had a thought of what (TCE) would do if it went into the ground," Carr said in the DEQ video.