

THE GRIEVING LANDSCAPE: WOMBS AND WALLS DO NOT PROTECT

By Heidi Hutner

In legends lives a woman. Turned monster from loneliness. Turned monster from agony and suns exploding in her chest. She gives birth to a child that is not so much a child but too much a jellyfish. The child is struggling for breath. Struggling in pain. She wants to bring the child peace. Bring her home. Her first home. Inside her body.

– Kathy Jetñil-Kijiner, “Monster,” from *Iep Jaltok: Poems from a Marshallese Daughter*

At thirty-five, I was diagnosed with Hodgkin’s disease. One year before my diagnosis, my mother died from complications after heart surgery. At the time of her death, my mother had cancer – lymphoma. Five years prior to Mom’s death, my father passed away from a brain tumor, a metastasis from the cancer melanoma. Two years after I had completed my chemotherapy treatment for cancer, I gave birth to Olivia. My miracle.

At first, I was ecstatic about the pregnancy. I had always wanted children, and with the cancer I feared this would never happen. The doctors said I was lucky to give birth to a biological child at my age (late thirties) *and*

after chemo (my treatment left me with a 50 percent chance of remaining fertile afterward). But now, a mother-to-be, I was also afraid. How could I protect my baby from our family cancer blight? From the pollution all around me? I wondered: Were our family cancers genetically induced or environmentally so? Or both? “Cancer rates are way up,” said Dr. Wisch, my oncologist, an Alan Alda look-alike, when I asked him his opinion. “Yes, I think our polluted environment has a lot to do with the rising numbers.”¹

My desire to protect my baby daughter from a future cancer diagnosis drove me into a rabbit hole of reading and learning about carcinogenic contamination. My journey began with reading Rachel Carson’s classic *Silent Spring*; Sandra Steingraber’s *Living Downstream: An Ecologist’s Personal Investigation of Cancer*, and *Having Faith: An Ecologist’s Journey to Motherhood*; Theo Colburn and Dianne Dumanoski’s *Our Stolen Future*; Jonathan Harr’s *A Civil Action*; and many more.



Women Strike for Peace march, July 15, 1962, Mercury, Nevada. Photo by Harvey Richards.

Everything I learned confirmed my worst fears: Our world swirls with carcinogens, these carcinogens are in our bodies, they penetrate mothers’

wombs and breasts. Synthetic chemicals and ionizing radiation change our makeup, harm our genes. Our babies are born poisoned, their umbilical cords have hundreds of synthetic chemicals in them at birth.² Mother's milk is a toxic cocktail.³

Rachel Carson's worst predictions back in the early 1960s had come true: 80,000 plus unregulated carcinogens now fill our world. An uncontrolled experiment. We are the guinea pigs.

Fast forward about eleven years: one summer day, in 2009, on the Upper West Side of Manhattan, at lunch with a close friend (and cousin) of my deceased mother, Phyllis Resnick, I stumbled upon a story about my mom that I had never heard before. The tale Phyllis told would radically change my life. My then preteen, Olivia, who was by my side, listened rapt with me as we learned of our maternal nuclear legacy.

Phyllis described how my mother and she, along with their good friend Thalia Stern Broudy, had been a members Women Strike for Peace (WSP), an antinuclear group led by Dagmar Wilson and Bella Abzug in the 1950s and 1960s. In the 1950s, during the Cold War period in which a hundred aboveground nuclear test bombs had been detonated in the Nevada desert, a team of physicians and scientists initiated a survey to determine the effects of nuclear fallout through the examination of baby teeth for the presence of cancer-causing, radioactive material – strontium-90. With a chemical makeup similar to calcium, strontium-90 is easily absorbed in teeth and bones in humans and animals. Thousands of baby teeth were collected between 1958 and 1971 by the Greater St. Louis Citizen's Committee for Nuclear Information to be used in the St. Louis Baby Tooth Survey. In 1961, preliminary results of the survey showed high levels of strontium-90 in baby teeth of children born after 1945. This terrifying information drove the mothers of Women Strike for Peace to band together and protest atmospheric bomb testing. In the early 1960s, my mother, along with 50,000 women from WSP, wrote letters, gathered petitions, lobbied congressional representatives, initiated lawsuits, and protested through marches and street

demonstrations, tactics rarely seen before the Vietnam War and the height of the civil rights movement. In 1963, the United States, England, and the Soviet Union signed the Partial Nuclear Test Ban Treaty, an agreement to halt atmospheric, underwater, and outer space bomb testing. The signing of the treaty in the United States has been attributed, in large part, to the efforts of Women Strike for Peace.⁴

After discovering the story of my mother's involvement with WSP, I became obsessed with feminist nuclear history. On March 11, 2011, in the midst of my deep dive into the material, a massive earthquake and Tsunami hit the Tohoku region of Japan. Three out of five nuclear plants at Fukushima Daiichi Nuclear Power Plant exploded and fully melted. I followed this story in the news and attended many Fukushima disaster events in New York City near to where I live.

A few years after the Fukushima disaster, I met with visiting Hibakusha women, survivors of the Hiroshima and Nagasaki bombs, at several Hibakusha Stories events in New York City. Hibakusha Stories⁵ brings Hiroshima and Nagasaki survivors to schools to speak about their experiences in 1945, when their cities were attacked with atom bombs. At these talks, I met Kristen Iversen, the author of *Full Body Burden*, an investigative memoir about growing up next-door to Rocky Flats, the former nuclear weapons facility in Arvada, Colorado.⁶ In the Hibakusha Stories presentation, Kristen and the other speakers explored the connective link that binds all nuclear disasters. After Kristen spoke, we chatted about our nuclear histories, and she invited me to visit her in Arvada to uncover more about Rocky Flats.

In the summer of 2016, I traveled to Colorado to meet with Kristen – as well as with scientists, mothers, and fathers – to learn more about the Rocky Flats former nuclear weapons facility. It was my daughter Olivia's last month at home before she went off to college, and as the history of women and nuclear disasters is part of our maternal family legacy, I asked her to join me.

I drove the Prius rental from the Denver airport to Boulder and arrived at the Colorado Chautauqua National Historic Landmark in the afternoon. The sight of the tall, flat, conglomeratic sandstone unsettled me as we entered the park property. The immense rocks looked unreal, like something biblical or darkly fantastical – a mountain in a science fiction film that contains, within it, a dangerous and secret realm. The sharp upward angle of the earth leading to the tall rocks threw me off balance. Beyond those foreboding crags sits the closed Rocky Flats Nuclear Facility, now a Superfund site and wildlife refuge, a grieving land at the base of the snowcapped Rocky Mountains. The terrain is laced with plutonium, uranium, beryllium, cesium 137, many other forms of ionizing radiation, and a long list of toxicants.

As I pulled into the main road on the Chautauqua property, I turned and saw a large grassy area with groups of picnicking families at the base of the large lodge. A perfect summer day. Blankets covered with baskets of food and toys. Parents and children eating, frolicking, talking, throwing Frisbees, and playing catch. Dogs romped about. Colorado families on a sprawling green lawn at the base of the Flatirons.

Olivia asked me to stop the car for a moment so she could get out and take pictures of the mountainscape. She walked toward the trailhead, also filled with pretty young families walking and running upward on the wide sloped path, leading toward the crags.

She snapped photos of the sky and rocks and wildflowers.

Olivia returned to the car and we headed to the big lodge to register and collect keys for a periwinkle-blue, wood-shingled cottage.

The sign over its door said, “Morning Glory.” Our temporary home. The next morning, I rose early while Olivia still slept, and hiked in the hills just beneath the crags, through fields of wild grasses and flowers – asters, blazing stars, western wallflowers, stonecrops – and into the cool of the evergreen trees. It was hard to make sense of these two very different but overlapping realities: a stunning Colorado landscape and nuclear horror. As I hiked, I

tried to quiet my mind and push away the frightening scientific facts and stories that I had read about Rocky Flats. Mothers, children, and former workers all sick with cancers. Dead-too-soon loved ones. A contaminated land.



Aerial photo of Rocky Flats Nuclear Weapons Plant before being leveled. Photographer unknown.

As I circled back and descended to the small streets toward our light-blue cottage, I passed people walking their dogs, children playing, and families chatting inside screened-in porches. This was all “normal” Americana – summer vacation in the Colorado Rockies. But the normalcy shook me. Did these people have any idea about the nuclear disaster on the other side of the mountain?

Wombs and walls cannot protect.

After an early breakfast, Olivia and I met Kristen Iversen⁷ in the Chautauqua parking lot. She would be our tour guide through Arvada. Tall and blonde, Kristen wore a long, flowing, colorful skirt and blouse with a wide leather belt and silver buckle cinched at the waist. In her arms, she held her small dog, Emma, a papillon. Kristen looked the part of a Colorado gal who had

grown up riding horses. This was her territory. She had seen so much cancer in her friends and neighbors in the community. She also worked at the plant as a young adult and raised her two sons here during their early years.

I drove, Kristen sat in the passenger seat next to me, and Olivia crouched down in the back seat with the windows firmly sealed shut. Olivia wore an oversized sweatshirt and red baseball hat with the embroidered words, “Make America Kind Again.” I glanced back and wondered, *Should I have brought my daughter here? Is it safe?* All it would take is the smallest bit of plutonium to enter her lungs and her health could be compromised, or the health of her children, and their children’s children.

We traveled down Indiana Street, past fields of brown grass, dry scrub bushes, gently rolling hills, and the unmarked property of the former plant. Bicyclists flew by. I wondered if they knew about Rocky Flats and the dangerous air they were breathing.



Photo of cows next to Rocky Flats and Candelas advertising sign, 2016. Photo by Michael Kodas.

Olivia asked Kristen questions: “Those cows, are they contaminated? What are those people doing playing miniature golf? Aren’t they

concerned?”

“Studies have shown that local cows do have plutonium in their bodies,” Kristen replied. “And, yes, it’s amazing that people just go on as if everything is fine.”

Kristen pointed to a group of houses. “Over there, that’s where Bini Abbott had a horse farm. Many of her horses had birth defects, organs outside their bodies, and some were sterile. Some of the women in the neighborhood were sterile, too. I told you about the rancher, Lloyd Mixon, who had a deformed pig, Scooter? He would take Scooter with him to city council meetings and try to get the government to tell him what was going on.” We drove a little further down the road. “This was where the Jackson Turkey Farm used to be,” she said. “The family who owned it said DOE officials would come by unexpectedly to test the turkeys, and sometimes take them away. No one ever found out what they did with the turkeys or what they discovered.”

We drove to Kristen’s childhood home, which looked like a 1960s Disney movie set: barn, bridge, creek. “That barn and field over there held my horses,” she said. “But the water in the creek, the whole area, has been affected by off-site plutonium contamination. New people live here now.” We gazed at the bubbling water that ran under a small wooden bridge – a tempting area for children to play in – potentially polluted with plutonium. There were no “stay out” signs or warnings.

“I don’t get it,” Olivia said.

“Yes, it’s very sad,” Kristen sighed.

Further on, we approached Standley Lake. The water was wide and still, bounded by a landscape covered with the same dry grasses and scrub bushes, and a few thin, sickly looking trees. A well-worn dirt path led to the shoreline. Kristen told us the lake was a drinking water source for the cities of Westminster, Northglenn, and Thornton, even though plutonium is in the sediment. There were signs for boat rentals – paddleboard, canoes, and kayaks.

“People aren’t supposed to swim here,” Kristen noted. “It’s dangerous to kick up the sediment. But they waterski and fish.”

Olivia asked, “Do they eat the fish?”

“Yes, sadly, many do.” Kristen replied.

We drove on and parked on the side of the road, with a view of the lake, near a white clapboard home. An older man exited the front door and carried a box to the rear of the house. He did not look our way. Kristen said that the man was the father of her childhood friend, Tamara. Kristen told us how Tamara grew up in this lakeside house, how her parents were deeply committed to their Mormon faith. She was eventually diagnosed with brain cancer, but her parents didn’t believe the plutonium had anything to do with it. I watched Tamara’s father walk into his house while listening to Kristen speak. I wondered about the safety of the soil and the dust on the soles of his shoes.

Two years ago, Michelle Gabrieloff-Parish,⁸ who lives nearby in Superior, took her video camera and filmed the lake during a rainstorm. She watched the contaminated water from Rocky Flats rushing beyond its containment areas and flooding Standley Lake. She filmed the bubbling runoff at the top of the body of water at the edge of the shoreline. The residents whose water comes from the lake were never warned by authorities to avoid drinking from or bathing or recreating in the water.

The final stop on our tour was the new housing development, Candelas. Candelas looks like new suburbia in Anywhere, USA, but as we entered the development, Kristen pointed out that many of her scientist colleagues believe the community isn’t safe for residence. Plutonium has been detected in the soil, although real estate brokers are not required to inform prospective buyers about the contamination or about the history of Rocky Flats. Plutonium has also been detected in a nearby drinking water source. As I parked the car in front of the model houses, I realized just how close we were to the Refuge. *Too close.*

“I wouldn’t live here in a million years,” Olivia blurted out incredulously.

I turned back and saw fear in my daughter's sky-blue eyes. I debated getting out of the car but decided to go for it – I would not be giving birth to more children, so I convinced myself it would be okay. My damaged genes would not impact another generation.

Olivia stayed in the car as Kristen and I stepped out to ask the real estate agent a few questions. It was only a few feet from the car to the office, but with each step on the ground, I thought of invisible plutonium and the soles of my shoes. No turning back. I was exposed. I noted there was no wind today. But, then, there was my daughter. I worried (again) that perhaps I should not have brought Olivia with me on this trip. Yet, all around us were playgrounds and recreation areas and homes and schools – all within range of the strong Chinook winds and the former plumes from the weapons plant. The families in Arvada, Westminster, and Broomfield live with plutonium contamination from birth to death. New people move in every day. They come here to Arvada and to these new developments like Candelas, where it's much cheaper to buy a house than in Boulder. They have no idea. It's Colorado. The good life. Land of hikers, skiers, bikers. Land of the wealthy, healthy, and athletic.

We entered the small real estate office. The cheery agent greeted us with brochures and asked us our names. She played up the benefits of raising kids here in Candelas. She boasted about the excellent new schools, a new swimming pool and rec center, the hiking trails running from the development through the “natural habitat” of the refuge of Rocky Flats with its “elk, deer, owl.” Then she told us about Standley Lake, “A great place to boat and fish, right nearby.” I felt my cancer cells divide as she spoke. My hand flew to my neck – automatically checking my lymph nodes – where my scar remained from having tissue removed when I had Hodgkin's disease. My cancer tied me to Rocky Flats, even though I was not from there, but so many residents have the same cut on their neck, the proverbial downwinders' scar.

How the hell do they allow people to live here? My mind raced. Not one word was said by the agent about plutonium from the former plant site. Or the risks of raising kids here. Or the rare cancers in the community. She smiled her Teflon smile, handed us paperwork with price points, and we took a tour of one model house. It had the standard stainless-steel kitchen, large walk-in closets, large picture windows, and high ceilings. Through the window glass, I could see snowcapped Rocky Mountains in the distance. If the mountains could speak, I'm sure they'd be screaming.

This is the American Dream.

Imagine a time when American soldiers came home from war, went to school for free on the GI Bill, and were offered economic incentives to move out of the cities and into suburbia. Freeways and highways were etched into the earth, making way for more cars and swift travel out of cities and into the brave new world of the suburbs. Gender roles had shifted during World War II – women took over jobs traditionally held by men as many men went to war, and it was expected that such roles would revert as soldiers returned home. And as World War II ended, with the bombing of Hiroshima and Nagasaki, the “ideal” middle-class white American woman tended to the house and children, while her husband worked outside the home. Little houses on the hillside would be built, “all made of ticky-tacky,” as the song goes, and people from the working classes would move up the social scale and live well in these new domestic boxes. Machinists and carpenters and plumbers and electricians would make more money than they ever imagined, and each house would come equipped with new appliances for every task that had previously been done by hand. TV was born. Fast food was born. Mass consumption was born. Every family had a car, and then two or three. Suburban communities seemingly offered upward mobility, safety, and comfort.

As it turns out, the spread of suburbia was as much about “white flight”⁹ as it was about the fear of atomic weapons hitting urban areas and the need

for population dispersal in case of nuclear attack.¹⁰

While the suburban home expanded to include more gadgets, more bedrooms, more privacy, more ease, across the nation and around the world nuclear bombs were being built and tested to support the Cold War. The new suburbia seemed safe, but toxic dangers lurked. Many of these new communities were built next to bomb factories and nuclear facilities such as in Hanford, Washington;¹¹ Oak Ridge, Tennessee; Brookhaven, New York;¹² Los Alamos, New Mexico; and the suburbs of Denver, Colorado. Nuclear families provided workers for nuclear factories. Historian Kate Brown suggests developers of the bomb industry understood that happy families living in upscale suburban settings made for happy nuclear workers.¹³ Nuclear homes and nuclear families normalized atomic war, a war that in many ways was being secretly waged on its own citizens. According to Carole Gallagher,¹⁴ “This nation’s dirty little secret is that for [more than] 50 years the only nation on which we have declared a nuclear war is the United States.” As the saying goes, “We are all downwinders.”¹⁵

So, picture living in a community that appears clean, safe, middle class, where the children play outside all day, ride their horses and dirt bikes, swim, fish, and waterski. The windy Colorado plateau offers spectacular views of the Rocky Mountains. Horse and cattle graze in local fields. According to Barbara Hoskinson,¹⁶ a mother who raised her children in the suburb of Arvada in the 1960s and 1970s, life was “ideal – apple pie, church, and picnics. It was good.”

Right next door to this *Father Knows Best* and *Leave It to Beaver* suburb, there was the very busy and quickly expanding Rocky Flats Nuclear Weapons Facility, at which they were secretly constructing plutonium triggers for nuclear bombs – triggers that are, in and of themselves, nuclear bombs. These plutonium triggers would set off the very test bombs my own mother fought to shut down. For most of the plant’s operational years, local Arvada mothers like Hoskinson had no idea what was being made at Rocky Flats. They were not informed of the fires or leaks. Years later, Hoskinson

and her daughter developed thyroid cancers, and other family members developed cancers as well – rectal, kidney, lung, and thyroid. When Hoskinson learned the history of Rocky Flats, she became angered and saddened about the losses her family suffered and the destruction of such a beautiful landscape. She felt betrayed by her government. This is a common story. Kristen told me, “We lived a very good life in many ways. Arvada was a great place to grow up.” That is until her teenage boyfriend developed testicular cancer, her friend Tamara developed multiple brain cancers, and she eventually learned the true story of Rocky Flats.

Operating from 1952 to 1992, the Rocky Flats nuclear weapons facility was located approximately 15 miles northwest of Denver, a city built by an influx of miners during the gold rush in the nineteenth century. During the years of its operation, the plant constructed more than 70,000 triggers for nuclear bombs. Rocky Flats would be the site of two major secret plutonium fires, blowing radioactive poison into sections of Arvada and Denver in 1957 and 1969. Hundreds of smaller fires also took place, as well as regular leaks, spills, and atmospheric plutonium releases. Plutonium clouds blew over houses, swimming pools, schools, churches, farms, fields, and streams. Rocky Flats is known for powerful Chinook winds – winds that would blow plutonium dust into local neighborhoods. Liz Martin,¹⁷ a Rocky Flats neighbor for five years, developed cervical cancer; she now has leukemia. She lost one pregnancy when living there. Martin recalls the frightening sound of the intense winds blowing through her house, “violently shaking the windows and walls.” Martin is convinced the plutonium dust made its way into her home, and that is why she’s sick now. She regrets having ever lived there and would never move back. She worries for her living children and hopes they don’t get sick. Today, the Chinook winds from Rocky Flats continue to pose a problem, according to meteorologist W. Gale Biggs.¹⁸ Buried contamination is brought to the surface by animal and plant life and then blown downwind. Just downwind, of course, there are large populations of families living in neighboring communities.

Locals did not know that Rocky Flats was a weapons factory for most of its years of operation. Workers employed there were forbidden to speak of their work and often didn't comprehend the full extent of the factory's activities. Many workers would become sick with cancer and die far too young.¹⁹ The families living in the neighborhoods surrounding Rocky Flats did, and they continue to suffer from cancers and strange illnesses. In addition, many of their pets were born with deformities or developed cancers. A preliminary report from a recent health survey shows a high rate of cancers in humans in the area, and of those reported, 48.8 percent are rare cancers.²⁰ Dr. Carl Johnson's 1981 health research shows high rates of cancer in the neighboring communities as well, and newer studies show a high percentage of rare cancers.²¹ "I grew up on a farm [next to the plant property] and my horses died of brain tumors," Nikki Willems²² says. "When I was a teenager, we'd go fishing out at Standley Lake; the guys would pull up fish with two heads and three eyes. We didn't think anything of it. We were just kids. You know, there's plutonium there. Kids swam in it when I was growing up." Today, Willems has Hashimoto's disease, and many of her friends from high school have had cancer or have died from cancer.

By 1989, The FBI and EPA suspected criminal negligence at Rocky Flats, which led to a raid focused on investigating broken safety regulations. A federal grand jury began an investigation, a settlement was negotiated, the court documents were sealed, and the plant closed. The story of this federal grand jury is fraught and complex, and cover-ups are suspected in the sealing of the documents and lack of full prosecution.²³ The Rocky Flats cleanup was officially completed in 2004;²⁴ however, numerous scientists, nuclear experts, local citizens, and antinuclear activists argue the cleanup is far from finished. Unknown but large amounts of plutonium and other contaminants remain on the land in what has been turned into a Superfund site, a designation made under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. The primary industrial site (the Superfund area – 485 acres) was never completely remediated.

There is a buffer zone, also heavily contaminated, although the EPA claims this area is fully remediated. The surrounding area, now called a National Wildlife Refuge, was not remediated;²⁵ contamination has been detected there by scientists Edward Martell and Harvey Nichols.²⁶ Research shows “there are more than 20 million potentially fatal doses of plutonium per square mile at the refuge.”²⁷ Groundwater tested by the Rocky Flats Stewardship Council found elevated levels of plutonium and americium in groundwater testing stations in the side of the refuge on the southeast corner and closest to the new Candelas housing development in 2015.²⁸ A host of other toxic and radioactive contaminants have also been found at Rocky Flats, including americium, uranium, cadmium, PCBs, and beryllium.²⁹

Homes, children, and radiation disaster obviously don't belong together; however, they intersect in ecosociological contexts such as Rocky Flats. There are grave implications here: science shows that females and children are most harmed by radiation, and babies and fetuses most of all,³⁰ and families, women, and children garner the least attention in health studies of radiation exposures at Rocky Flats.³¹ Regulatory radiation safety standards are based on a white male adult body, the standard “Reference Man.” The reference man model fails to account for differences of age, race, and gender in radiation exposures. According to Mary Olson's³² and Arjun Makhijani's³³ analyses of radiation and cancer risk in the Beir VII report, when we hear a level of radiation is safe, we need to adjust the dial and redo the math; an adult woman is twice as likely to get cancer from the same exposure to radiation as a white adult man. These numbers go way up with children – girls are at least seven times as likely to get cancer from the same exposure to radiation as an adult white male, boys are at least five times as likely as an adult male, and babies and fetuses are the most vulnerable of all. Adult females are almost twice as likely to die from exposures as adult males, and so on.³⁴ Safety standards make no adjustment for those who are

most at risk: fetuses, babies, children, and women – neighbors of nuclear facilities such as Rocky Flats.³⁵

“Go ask the mothers,” said Dr. Alice Stewart, an epidemiologist, as she attempted to locate the reason behind an epidemic of childhood cancer in 1950s England.³⁶ Stewart discovered that a single X-ray to the womb nearly doubled a fetus’s chance of developing cancer in childhood. Going door to door, Stewart asked mothers what they had done differently during their pregnancies to possibly bring on cancer in their children. Her approach was radical. She threatened the nuclear industry, calling attention to the health hazards of radiation, and was therefore denounced. Stewart’s gender did not help matters. In the 1970s, Stewart’s research on the dangers of X-rays to the fetus would be proven accurate by male researchers. What about pregnant women living nearby to Rocky Flats? What about developing young women of reproductive age who are exposed to radiation? What about their ova? What about the sperm of the men? Grave mutagenic harm may be done even before conception.³⁷

Like a mother’s womb, we like to think of the home as a safe space. Radiation pollution undoes all that. Ingested and internalized radiation travels through the mother’s bloodstream and crosses the placenta. External radiation, such as X-rays and gamma rays, penetrate the womb. Wombs and homes, as permeable spaces, put the unborn and children at risk.³⁸

Rocky Flats is “a national sacrifice zone,” says Robert Alvarez,³⁹ associate fellow at the Institute for Policy Studies and former senior policy advisor to the secretary at the US Department of Energy. “That’s what it is, although no one will say so officially. How much remains buried there? A tremendous amount – plutonium doesn’t go away. No one has done this yet – it’s costly and complex – but someone needs to go into those houses nearby in Arvada and take samples. We don’t know how much plutonium is in them.”⁴⁰

Houses and families do not belong next to radioactive sacrifice zones. Home sweet home. Home is where the heart is. Home, home on the range.

Home is where it starts. Dream home. Don't sit at home. Love starts at home. Home, home is where I want to be / pick me up and bring me down. This space in which we grow occupies so many cliché, trite, and nostalgic phrases and song lyrics, yet we know home may be a place of horror, where violence remains hidden. We long for the perfect American Dream home, but we know secret dangers lurk there. Post-World War II, those dangers include toxic and radioactive contamination.

Today, when driving by Rocky Flats, there are no signs, no warnings, no walls, only thin wire fencing. The only symbol of the past is Jeff Gipe's eerie sculpture of the *Cold War Horse*. The landscape looks inviting and beautiful. Cattle graze. Wind turbines line one section of the refuge property, part of a new green power project. Dig a little, knock on a few doors, and tragic family stories of cancer spill out of the mouths of residents as my interviews and other oral histories show. The refuge opened to families and visitors for recreation purposes on September 15, 2018. Environmentalists and community activists continue to oppose the opening. Harvey Nichols, a biologist who has examined plutonium in the soil at Rocky Flats, argues that children should not be allowed "out there," as the potential for their developing cancer is too great. W. Gale Biggs also offers scientific evidence for why people should be concerned about using the site for recreation and living nearby.⁴¹

Shaunessy Keely,⁴² MPH (master of public health), grew up in Arvada, only a few miles from Rocky Flats, and she recently lost her father, Brian, to an extremely rare form of cardiac cancer. He lived in the Village of Five Parks, a development in Arvada under 2 miles from Rocky Flats. In a wistful tone, she explains, "Some people don't want to face what's going on. There's a lot of denial. In every fourth house in my parents' neighborhood, someone is very sick. The family next door – the woman has MS, but her husband, my dad's close friend, refuses to talk about Rocky Flats. My good friend who just lost her husband says she won't move; she says her house is her best investment." A child, Nathan, living only a few blocks from Keely's father,

developed the same rare heart cancer. They were diagnosed in the same year. Nathan is battling that cancer now. He underwent a surgery to remove the large primary cancer tumor from his heart and received chemotherapy treatments for a number of years. His future is uncertain. Nathan's mother, Elizabeth Panzer,⁴³ speaks of the heartbreak of her situation: "When we moved here from Chicago, nobody warned us that this housing and land might be polluted with plutonium. We didn't know much about Rocky Flats. We believed that it was all cleaned up." Panzer notes: "So many people in Arvada don't want to think about the dangers here. The government says it safe and they want to believe it. I wanted to believe it, too." Panzer pauses and then says, "But my son could die any day and I think there may be a cancer cluster here. People *need* to know." Panzer and her family chose to stay in their house so Nathan could continue to live a normal life during his illness. Now she questions that decision. "What about the health of my other children? And if I sell my house and move away, what about the next family? What about those kids?"⁴⁴



Cold War Horse, sculpture by Jeff Gipe.
Photo courtesy of Heidi Hutner.

In the 1950s, suburban housing began cropping up all around the Rocky Flats landscape in and around Arvada. The new development, Candelas, which I visited with my daughter and Kristen Iversen, will include 1,450 homes on 1,500 acres of plutonium-contaminated land right next door (approximately 1 mile) to the Rocky Flats Wildlife Refuge. Candelas is labeled “green” because of the buildings’ LEED certification, Energy Star ratings, solar rooftops, and solar streetlamps.⁴⁵ Real estate agents and local home sellers in the area are under no legal obligation to alert homebuyers about the history of Rocky Flats and the risks of buying downwind. At the Candelas website, there is reassuring information about the cleanup at Rocky Flats; two official letters posted their report on the limited soil testing in sections of the Candelas property in 2013 and 2011.⁴⁶ The device used to

test for radiation on-site was the Ludlum 19 Micro-Meter; and, based on soil testing done with this device, the radiation levels are declared as “background” and safe for housing. However, this information is misleading, as the Ludlum 19 does not pick up plutonium; it detects gamma rays, and plutonium emits alpha rays.⁴⁷ There is also no mention of radioactive materials found in the groundwater and soil tests nearby. The words on the Candelas housing site do not account for the intense local winds blowing contaminated materials from the nearby refuge and Superfund site; these winds and the natural movement of biological materials pose an ongoing hazard to Candelas residents and the local community.

Today, community activists try to warn others of the ongoing dangers of living near the refuge and former plant, and many of these spokespeople are mothers. Michelle Ramon Gabrieloff-Parish⁴⁸ founded the activist watchdog group Candelas Glows to raise awareness about the area’s dangers to homebuyers. In addition to Candelas Glows,⁴⁹ she led a protest in front of the development and wrote an article for *Elephant Journal* about the health risks of living there. Gabrieloff-Parish is concerned that “there are no plans in place for disasters such as floods and extreme weather, no protections in place for future radical ecological events” at and around the Rocky Flats site. She recently monitored the flow of water from the former plant during a major flood and observed that the overflow, which is supposed to be diverted away from drinking and bathing water sources, ended up in the local water supply.

Tiffany Hansen, another mother activist, founded the community support group, Rocky Flats Downwinders.⁵⁰ Hansen grew up 3.75 miles from the plant. She now lives in Denver. “I had a pillow seat in my bedroom window growing up,” Hansen explains.⁵¹ “I spent many nights looking out at the plant’s lights, but I had no idea what was really going on.” Now, she is outraged at the dangers she and her peers were exposed to without their knowledge or consent. It wasn’t until a few years ago, after developing an ovarian tumor and experiencing other “debilitating health” symptoms

(including Graves' disease), that she Googled and discovered the Rocky Flats' contamination story. Hansen then read Kristen Iversen's memoir and became deeply upset with the news that she had grown up next to a bomb factory: "We played outside all day in that stuff, exposed, unaware. I was hysterical when I found out. I called many of my old friends and discovered too many stories of cancer."

"We thought we were living the dream," Hansen⁵² continues. Her father owned an electrical contracting company that did work at the Rocky Flats site. He was well compensated. They had a nice house with a pool, she had fancy toys like "four wheelers," and her mother drove a Corvette. In addition to her ovarian tumor, Hansen has had one miscarriage (common to women who live nearby), and she had a benign lymph tumor on her neck as a child. In her youth, Hansen was often hospitalized for mysterious debilitating symptoms. She bears the downwinder's scar on her neck: "Just like Kristen Iversen describes in her book about her own scar." Her brother, who worked at the plant, has heart and thyroid problems. Hansen's childhood best friend had a brain tumor in the third grade. Another friend had ovarian cancer and passed away at forty-three. Hansen's high school boyfriend, Curtis, had stage four thyroid cancer and he survived, as did his mom; Curtis's dad passed away from thyroid cancer.

"As a mother, I feel a sense of responsibility about Rocky Flats," Hansen says. "I get so many calls from sick people, and I feel so bad for those who remain unaware of the dangers at the plant. I see families moving into this area, to all those beautiful houses, where it looks safe. But, a few years from now, they may develop cancer. Kids are running around there. Knowing what I know, I feel so sad for them." In response to these many health and safety concerns, Hansen sought out Carole Jensen, RN, and asked her to help create the Rocky Flats Health Survey. This survey is the first since Dr. Carl Johnson⁵³ looked at the health impacts of ionizing radiation on the local community surrounding Rock Flats. She recently initiated another citizen-led health survey and a soil study with Dr. Micheal Ketterer.

Another mother, Denise Leonard, newly discovered the history of Rocky Flats' contamination and health risks. She raised her family next to the facility and now lives in California. Her two sons, both born in Arvada, had brain birth defects – hydrocephalus – a condition that may be caused by ionizing radiation exposure in utero. After discovering the true history of Rocky Flats, Leonard joined the board of Rocky Flats Downwinders and became an active member. Alice Paetzel,⁵⁴ a two-time cancer survivor and another mother from the community, lost her adult daughter Dawn to ovarian cancer. Alice's surviving daughter Heidi had childhood epilepsy and now has growths on her ovaries, and Alice's husband just passed away from prostate cancer. Paetzel says, "We sent our kids to the small private Arvada Christian School, right near Standley Lake. So many of those children and teachers have died. We thought we were protecting our kids by sending them there, but we marched those little angels to their deaths."

This legacy of the fraught toxic maternal and familial spaces (wombs and homes) goes back to World War II. Female scientists and health experts such as Rachel Carson, Rosalie Bertell, Helen Caldicott, and Alice Stewart, among others, warned us about our future if we continued poisoning ourselves with toxic and radioactive contamination. My own mother participated in combatting the dangers of ionizing radiation in her work with Women Strike for Peace and later during Nuclear Freeze in the 1980s. A legacy of mothers and women fighting this battle continues today across the United States and the globe – including the predominantly female ICAN (International Campaign to Abolish Nuclear Weapons) 2017 Nobel Peace Prize winners who work to support the 2017 UN Treaty to Ban Nuclear Weapons.

Like so many activist mothers and women at nuclear disaster sites around the world who rise up, demand information, and fight for their children's safety, Arvada mother Elizabeth Panzer says: "I cannot stay silent anymore," and let "such suffering happen to more children. The denial must end."

Again and again, I hear my daughter's words, "I wouldn't live here in a million years."

Endnotes

1. See, for example, Song Wu, Scott Powers, Wei Zhu, and Yusuf A. Hannun, "Substantial Contribution of Extrinsic Risk Factors to Cancer Development," *Nature* (2015) <https://doi.org/10.1038/nature16166>. There is much additional literature on the links between cancer rates and environmental pollution.
2. See, for example, Environmental Working Group, *Body Burden: The Pollution in Newborns*, July 14, 2005, <https://www.ewg.org/research/body-burden-pollution-newborns>. Paul Terry, Craig V. Towers, Liang-Ying Liu, Angela A. Peverly, Jiangang Chen, Amina Salamova, "Polybrominated diphenyl ethers (flame retardants) in mother-infant pairs in the Southeastern U.S." *International Journal of Environmental Health Research* (2017), <https://DOI.org/10.1080/09603123.2017.1332344>.
3. Jenny Pronczuk, James Akre, Gerald Moy, and Constanza Vallenias, "Global Perspectives in Breast Milk Contamination: Infectious and Toxic Hazards," *Environmental Health Perspectives* 110, no. 6 (2002): 349–351, <https://doi.org/10.1289/ehp.021100349>. Philip J. Landrigan, Babasaheb Sonawane, Donald Mattison, Michael McCally, and Anjali Garg, "Chemical Contaminants in Breast Milk and Their Impacts on Children's Health: An Overview," *Environmental Health Perspectives* 110, no. 6 (2002): 313–315, <https://doi.org/10.1289/ehp.021100313>.
4. Amy Swerdlow, *Women Strike for Peace: Traditional Motherhood and Radical Politics in the 1960s* (Chicago: University of Chicago Press,

1993).

5. Hibakusha Stories, [Homepage 20], <http://hibakushastories.org/>.
6. Kristen Iversen, *Full Body Burden: Growing Up in the Shadow of Rocky Flats* (New York: Broadway Books, 2013).
7. Kristen Iversen, personal interview, Aug. 4, 2016.
8. Michelle Ramon Gabrieloff-Parish, personal interview, Nov. 11, 2016.
9. On white flight, see Jan Blakee, “On ‘White Flight’ to the Suburbs: A Demographic Approach,” *Focus: Institute for Research on Poverty Newsletter* 3, no. 2 (1978–1979).
10. See Kathleen A. Tobin, “The Reduction of Urban Vulnerability: Revisiting 1950s American Suburbanization as Civil Defense,” *Cold War History* 2, no. 2 (2001): 1–32.
11. On the building of the nuclear suburb at Hanford in Washington State, see Kate Brown, *Plutopia: Families, Atomic Cities, and the Great Plutonium Disasters* (Oxford, UK: Oxford University Press, 2015). Brown also offers an in-depth report on plutonium disasters at Hanford and the Mayak plant in the former Soviet Union.
12. On growing up next to Brookhaven National Laboratory, see Kelly Mc-Masters, *Welcome to Shirley: Growing Up in an Atomic Town* (New York: Farrar, Straus and Giroux, 2008).
13. Brown, *Plutopia*, 39.
14. Carole Gallagher, *American Ground Zero: The Secret Nuclear War* (Cambridge, MA: MIT Press, 1993).

15. Carole Gallagher, “In Nuclear Tests, We All Live Downwind,” *New York Times*, May 30, 1993, <http://www.nytimes.com/1993/05/30/opinion/lin-nuclear-tests-we-all-live-downwind-558593.html>. The phrase “we are all downwinders” was first used by a lieutenant testing the spread of fallout in the Nevada desert after he realized the radiation from the Nevada test site could not be contained.
16. Barbara Hoskinson, personal interview, July 29, 2016.
17. Liz Martin, personal interview, Aug.3, 2016.
18. W. Gale Biggs, personal interview, Aug. 2, 2016. See also W. Gale Biggs, “Airborne Plutonium Contamination and Rocky Flats,” YouTube video, posted by Highland City Club, August 25, 2015, <https://www.youtube.com/watch?v=rs-BZZJolYs&feature=youtu.be>.
19. Ted Zeigler, Larry Hankins, Harvey Nichols, and W. Gale Biggs, personal interviews, Aug. 2, 2016.
20. Carol Jensen, *Rocky Flats Downwinders Health Survey*, Metropolitan State University of Denver, May 2016, <http://rockyflatsdownwinders.com/wp-content/uploads/2016/05/RFD-Health-Survey-Executive-Summary-Final.pdf>. See also Malin et al.’s chapter in this volume.
21. For example, see Carl J. Johnson, “Cancer Incidence in an Area Contaminated with Radionuclides Near a Nuclear Installation,” *Ambio* 10, no. 4 (1981): 176–182; and Carl J. Johnson, “Cancer Incidence Patterns in the Denver Metropolitan Area in Relation to the Rocky Flats Plant,” *American Journal of Epidemiology* 126, no. 1 (1987): 153–155. For more

on health studies, see Iversen, *Full Body Burden*, where there is an exhaustive list on Rocky Flats health impacts.

22. Nikki Willems, personal interview, Nov. 30, 2016.
23. For more on the legal story, see Wes McKinley and Caron Balkany, *The Ambushed Grand Jury: How the Justice Department Covered Up a Nuclear Crime and How We Caught Them Red Handed* (New York: Apex, 2004).
24. Environmental Protection Agency, Search Superfund Site Information, 2017, <https://cumulis.epa.gov/supercpad/cursites/>.
25. Ibid.
26. Harvey Nichols, personal interview, Aug. 2, 2016.
27. S. E. Poet and Edward Martell, "Plutonium-239 and Americium-241 Contamination in the Denver Area," *Health Physics*, 23 (1972): 537–548, <https://doi.org/10.1097/00004032-197210000-00012>.
28. See contamination reports through 2015. Rocky Flats Stewardship Council, Monthly Updates, January 2019, <http://www.rockyflatssc.org/updates.html>.
29. Stephanie Malin and Becky Alexis-Martin, "Flatlining: Exploring Hidden Toxic Landscapes and the Embodiment of Contamination at Rocky Flats National Wildlife Refuge, USA," *Toxic News*, Feb. 8, 2017, <https://toxicnews.org/2017/02/08/flatlining-exploring-hidden-toxic-landscapes-and-the-embodiment-of-contamination-at-rocky-flats-national-wildlife-refuge-usa/>.

30. See Arjun Makhijani, *The Standard Reference Man in Radiation Protection Standards and Guidance with Recommendations for Change*, rev. ed., Apr. 2009, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.394.358&rep=rep1&type=pdf>; and Mary Olson, *Radiation Is More Harmful to Women*, Nuclear Information and Resource Service, Oct. 2011, <https://www.nirs.org/wp-content/uploads/radiation/radhealth/radiationwomen.pdf>. The updated gender/age-sensitive safety models have now been incorporated in the language of the 2017 UN Treaty to Ban the Bomb, thanks, in large part, to the work of Mary Olson; see Nuclear Information and Resource Service and the Institute for Energy and Environmental Research, “Radiation and Gender: One Basis for New Nuclear Weapons Treaty,” *Pressenza International Press Agency*, May 25, 2017, <https://www.pressenza.com/2017/05/radiation-gender-one-basis-new-nuclear-weapons-treaty>. See also, Heidi Hutner, “Invisible Victims,” *Ms. Magazine*, Summer 2015.
31. Malin and Alexis-Martin, “Flatlining.”
32. Olson, *Radiation*.
33. Makhijani, *Standard*.
34. Olson, *Radiation*; Makhijani, *Standard*.
35. Notably, studies on animals in Chernobyl and Fukushima also reveal that radiation most negatively impacts females (butterflies, birds, and bats); see P. Lehmann, Z. Boratynski, T. Mappes, T. A. Mousseau, and A. P. Møller, “Fitness Costs of Increased Cataract Frequency and Cumulative Radiation Dose in Natural Mammalian Populations From Chernobyl,” *Scientific Reports* 6 (2016): 19974, <https://doi.org/10.1038/srep19974>; A. P. Møller, T. A. Mousseau, G.

Milnevsky, A. Peklo, E. Pysanets, and T. Szép, “Condition, Reproduction and Survival of Barn Swallows From Chernobyl,” *Journal of Animal Ecology* 74 (2005): 1102– 1111; A. P. Møller, A. Bonisoli-Alquati, G. Rudolfson, and T. A. Mousseau, “Chernobyl Birds Have Smaller Brains,” *PLoS One* 6, no. 2 (2011): e16862, <https://doi.org/10.1371/journal.pone.0016862>; A. P. Møller, A. Bonisoli-Alquati, G. Rudolfson, and T. A. Mousseau, “Elevated Mortality among Birds in Chernobyl as Judged from Biased Sex and Age Ratios,” *PLoS One* 7, no. 4 (2012): e35223. The research team is currently studying these effects in Japan post-Fukushima March 2011 and has determined similar findings regarding gender and radiation. Tim Mousseau, personal correspondence, June 28, 2015 and April 2, 2017.

36. On Alice Stewart, see Gayle Greene, *The Woman Who Knew Too Much: Alice Stewart and the Secrets of Radiation* (Ann Arbor: University of Michigan Press, 1999).
37. “The potential effects of radiation on a conceptus [embryo or fetus] include prenatal death, intrauterine growth restriction, small head size, severe mental retardation, reduced intelligence quotient, organ malformation, and childhood cancer” write Cynthia H McCollough, Beth A. Schueler, Thomas D. Atwell, Natalie N. Braun, Dawn M. Regner, Douglas L. Brown, and Andrew J. LeRoy, in “Radiation Exposure and Pregnancy: When Should We Be Concerned?” *Radiographics* 27, no. 4 (2007): 909–917, <https://doi.org/10.1148/rg.274065149>. On reduced fertility in women exposed to radiation see Jennifer Y. Wo and Akila N. Viswanathan, “The Impact of Radiotherapy on Fertility, Pregnancy, and Neonatal Outcomes of Female Cancer Patients,” *International Journal of Radiation Oncology, Biology, Physics* 73, no. 5 (2009): 1304–1312.
38. Alice Stewart’s work on X-rays and children with cancer first illustrated this; on toxics (not radiation) and the permeability of the womb and the

impact on the developing fetus; see Sandra Steingraber, *Having Faith: An Ecologist's Journey Into Motherhood* (Cambridge, MA: Perseus, 2001).

39. Robert Alvarez, personal interview, Nov. 30, 2016.
40. Some work on this has begun, such as Marco Kaltofen's 2019 study, which includes an examination of plutonium dust taken from one house approximately 1 mile from the former nuclear weapons plant facility. See LeRoy Moore, "Rocky Flats Nuclear Guardianship #6: Marco Kaltofen, Plutonium in Respirable Dust with Harvey Nichols and Gale Biggs," *LeRoy Moore's Blog*, March 17, 2011, <https://leroymoore.wordpress.com/2011/04/01/rocky-flats-nuclear-guardianship-6-marco-kaltofen-plutonium-in-respirable-dust-with-harvey-nichols-gale-biggs-3-17-11/>; and Marco Kaltofen, "Microanalysis of Particle-Based Uranium, Thorium, and Plutonium in Nuclear Workers' House Dust," *Environmental Engineering Science* 36, no. 2 (2009), <https://doi.org/10.1089/ees.2018.0036>. Also, Dr. Michael Ketterer has analyzed soil near housing on Indiana Street; see Michael Ketterer, *Activities of $^{239+240}\text{Pu}$ and Pu Atom Ratios In Hemp Study Soils* (Report for Hansen Roddenberry Catalyst Grant Award), available from Tiffany Hansen, tiffany@rockyflatsdownwinders.com.
41. Jeff Todd, "Scientists Debate Rocky Flats Safety," 4 CBS Denver, July 27, 2017, <http://denver.cbslocal.com/2017/07/27/rocky-flats-plutonium>; W. Gale Biggs, *Airborne Plutonium Contamination and Rocky Flats*, YouTube video, posted by Highland City Club, August 25, 2015, <https://www.youtube.com/watch?v=rs-BZZJolYs&feature=youtube>, W. Gale Biggs, personal interview, Aug. 2, 2016; Harvey Nichols, personal interview, Aug. 2, 2016.
42. Shaunessy Keely, personal interview, Jan. 6, 2017.

43. Elizabeth Panzer, personal interview, Aug. 6, 2017.
44. This same question comes up in the documentary film *Dark Circle* (1982), about Rocky Flats activism in the 1980s, when a mother activist in the community wants to move away to protect her children, but doesn't want to sell her home to another young family. She doesn't want to endanger more children.
45. Candelas, "Candelas Awarded Prestigious LEED® Gold Certification," n.d., <https://www.candelaslife.com/news-candelas-awared-leed-gold-certification>.
46. Candelas, [Homepage], 2017, <http://www.candelaslife.com>.
47. John Saxton, *Request for Additional Information on Submittal Regarding License Condition 12.8, Ross ISR Project, Crook County, WY, Source Material License SUA-1601, DOCKET NO. 040-09091, TAC J00735*, Oct. 15, 2015, <https://www.nrc.gov/docs/ML1527/ML15278A115.pdf> Letters at Candelas website, CTL Thompson, 2013, and 2011, <http://www.candelaslife.com/faqs>.
48. Michelle Ramon Gabrieloff-Parish, personal interview, Nov. 11, 2016.
49. Candelas Glows, [Homepage], 2019, <https://candelasglows.com>.
50. Rocky Flats Downwinders' mission is to "Bring about awareness of Rocky Flats in order to educate the community, to sensitize medical professionals regarding potential adverse health effects suffered by Downwinders, and to obtain medical monitoring for Rocky Flats Downwinders, as well as inclusion under the Radiation and Exposure and Compensation Act (RECA)." Rocky Flats Downwinders,

<http://rockyflatsdownwinders.com/about-us/goals-for-rocky-flats-downwinders/>.

51. Tiffany Hansen, personal interview, Nov. 6, 2016.

52. Ibid.

53. Johnson, “Cancer Incidence.”

54. Alice Paetzel, personal interview, July 29, 2016.

Works Cited

Biggs, W. Gale. “Airborne Plutonium Contamination and Rocky Flats.” YouTube video, posted by Highland City Club, August 25, 2015. <https://www.youtube.com/watch?v=rs-BZZJolYs&feature=youtu.be>.

Blakee, Jan. “On ‘White Flight’ to the Suburbs: A Demographic Approach.” *Focus: Institute for Research on Poverty Newsletter* 3, no. 2, 1978–1979.

Brown, Kate. *Plutopia: Families, Atomic Cities, and the Great Plutonium Disasters*. Oxford, UK: Oxford University Press, 2015.

Candelas. “Candelas Awarded Prestigious LEED® Gold Certification,” n.d. <https://www.candelaslife.com/news-candelas-awared-leed-gold-certification>.

Candelas Glows. [Homepage]. 2017. <https://candelasglows.com>.

Colburn, Theo, and Dianne Dumanoski. *Our Stolen Future: Are We Threatening Our Fertility, Intelligence, and Survival? – A Scientific Detective Story*. New York: Plume, 1997.

Dark Circle. Directed and produced by Judy Irving, Christopher Beaver, and Ruth Landy.

- Environmental Protection Agency, Rocky Flats Plant (DOE) Golden, CO..
n.d. <https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0800360#bkground>.
- Environmental Protection Agency. Search Superfund Site Information.
2017. <https://cumulis.epa.gov/supercpad/cursites/>.
- Environmental Working Group. “Body Burden: The Pollution in Newborns,”
Environmental Working Group, July 14, 2005.
- Gabrielloff-Parish, Michelle. “Green Housing on Plutonium,” *Elephant Journal*,
May 30, 2013. <https://www.elephantjournal.com/2013/05/angelina-jolie-cuts-off-both-breasts-to-prevent-cancer-while-we-prepare-to-build-housing-on-plutonium-michelle-gabrielloff-parish/>.
- Gallagher, Carole. *American Ground Zero: The Secret Nuclear War*.
Cambridge, MA: MIT Press, 1993.
- . “In Nuclear Tests, We All Live Downwind,” *New York Times*, May 30,
1993. <http://www.nytimes.com/1993/05/30/opinion/l-in-nuclear-tests-we-all-live-downwind-558593.html>.
- Greene, Gayle. *The Woman Who Knew Too Much: Alice Stewart and the Secrets of Radiation*. Ann Arbor: University of Michigan Press, 1999.
- Hibakusha Stories. [Homepage]. 2017. <http://hibakushastories.org/>.
- Hutner, Heidi. “Invisible Victims,” *Ms. Magazine*, Summer 2015.
- Iversen, Kristen. *Full Body Burden: Growing Up in the Shadow of Rocky Flats*.
New York: Broadway Books, 2013.
- Jensen, Carol. *Rocky Flats Downwinders Healthy Survey*. Metropolitan State
University of Denver. May 17, 2016.
<http://rockyflatsdownwinders.com/wp-content/uploads/2016/05/RFD-Health-Survey-Executive-Summary-Final.pdf>.

- Jet̄il-Kijiner, Kathy. “Monster.” *Iep Jaltok: Poems From a Marshallese Daughter*. Tucson: University of Arizona Press, 2017.
- Johnson, Carl J. “Cancer Incidence in an Area Contaminated with Radionuclides Near a Nuclear Installation.” *Ambio* 10, no. 4 (1981): 176–182.
- . “Cancer Incidence Patterns in the Denver Metropolitan Area in Relation to the Rocky Flats Plant.” *American Journal of Epidemiology* 126, no. 1 (1987): 153–155.
- Kaltofen, Marco. “Microanalysis of Particle-Based Uranium, Thorium, and Plutonium in Nuclear Workers’ House Dust.” *Environmental Engineering Science* 36, no. 2(2009). <https://doi.org/10.1089/ees.2018.0036>
- Ketterer, Michael. *Activities of 239+240Pu and Pu Atom Ratios In Hemp Study Soils* (Report for Hansen Roddenberry Catalyst Grant Award). Available from Tiffany Hansen, tiffany@rockyflatsdownwinders.com.
- Landrigan, Philip J., Babasaheb Sonawane, Donald Mattison, Michael McCally, and Anjali Garg. “Chemical Contaminants in Breast Milk and Their Impacts on Children’s Health: An Overview.” *Environmental Health Perspectives* 110, no. 6 (2002): 313–315. <https://doi.org/10.1289/ehp.021100313>.
- Lehmann, P., Z. Boratynski, T. Mappes, T. A. Mousseau, and A. P. Møller. “Fitness Costs of Increased Cataract Frequency and Cumulative Radiation Dose in Natural Mammalian Populations from Chernobyl.” *Scientific Reports* 6 (2016): 19974. <https://doi.org/10.1038/srep19974>.
- Makhijani, Arjun. *The Standard Reference Man in Radiation Protection Standards and Guidance with Recommendations for Change*, rev. ed., Apr. 2009. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.394.358&rep=rep1&type=pdf>.

- Malin, Stephanie, and Becky Alexis-Martin. "Flatlining: Exploring Hidden Toxic Landscapes and the Embodiment of Contamination at Rocky Flats National Wildlife Refuge, USA," *Toxic News*, Feb. 8, 2017. <https://toxicnews.org/2017/02/08/flatlining-exploring-hidden-toxic-landscapes-and-the-embodiment-of-contamination-at-rocky-flats-national-wildlife-refuge-usa/>.
- McCullough, Cynthia H., Beth A. Schueler, Thomas D. Atwell, Natalie N. Braun, Dawn M. Regner, Douglas L. Brown, Andrew J. LeRoy. "Radiation Exposure and Pregnancy: When Should We Be Concerned?" *Radiographics* 27, no. 4 (2007): 909–917. <https://doi.org/10.1148/rg.274065149>.
- McKinley, Wes, and Caron Balkany. *The Ambushed Grand Jury: How the Justice Department Covered Up a Nuclear Crime and How We Caught Them Red Handed*. New York: Apex, 2004.
- McMasters, Kelly. *Welcome to Shirley: A Memoir from an atomic town*. New York: Farrar, Straus and Giroux, 2008.
- Møller, A. P., T. A. Mousseau, G. Milinevsky, A. Peklo, E. Pysanets, and T. Szép. "Condition, Reproduction and Survival of Barn Swallows from Chernobyl." *Journal of Animal Ecology* 74 (2005): 1102–1111.
- Møller, A. P., A. Bonisoli-Alquati, G. Rudolfsen, and T. A. Mousseau. "Chernobyl Birds Have Smaller Brains." *PLoS One* 6, no. 2 (2011): e16862. <https://doi.org/10.1371/journal.pone.0016862>.
- Møller, A. P., A. Bonisoli-Alquati, G. Rudolfsen, and T. A. Mousseau. "Elevated Mortality among Birds in Chernobyl as Judged from Biased Sex and Age Ratios." *PLoS One* 7, no. 4 (2012): e35223.
- Moore, LeRoy. "Rocky Flats Nuclear Guardianship #6: Marco Kaltofen, Plutonium in Respirable Dust with Harvey Nichols and Gale Biggs." *LeRoy Moore's Blog*. March 17, 2011. <https://leroymoore.wordpress.com/2011/04/01/rocky-flats-nuclear->

[guardianship-6-marco-kaltofen-plutonium-in-respirable-dust-with-harvey-nichols-gale-biggs-3-17-11/](#).

Nuclear Information and Resource Service and the Institute for Energy and Environmental Research. “Radiation and Gender: One Basis for New Nuclear Weapons Treaty.” *Pressenza International Press Agency*, May 25, 2017. <https://www.pressenza.com/2017/05/radiation-gender-one-basis-new-nuclear-weapons-treaty>.

Olson, Mary. *Radiation Is More Harmful to Women*. Nuclear Information and Resource Service, Oct. 2011. <https://www.nirs.org/wp-content/uploads/radiation/radhealth/radiationwomen.pdf>.

Poet, S. E., and Edward Martell. “Plutonium-239 and Americium-241 Contamination in the Denver Area.” *Health Physics* 23 (1972): 537–548. <https://doi.org/10.1097/00004032-197210000-00012>.

Pronczuk, Jenny, James Akre, Gerald Moy, and Constanza Vallenias. “Global Perspectives in Breast Milk Contamination: Infectious and Toxic Hazards.” *Environmental Health Perspectives* 110(6) (2002): 349–351. <https://doi.org/10.1289/ehp.021100349>.

Rocky Flats Downwinders. “Mission.” 2016. <http://rockyflatsdownwinders.com/about-us/goals-for-rocky-flats-downwinders/>.

Saxton, John. *Request for Additional Information on Submittal Regarding License Condition 12.8, Ross ISR Project, Crook County, WY, Source Material License SUA-1601, DOCKET NO. 040-09091, TAC J00735*, Oct. 15, 2015. <https://www.nrc.gov/docs/ML1527/ML15278A115.pdf>.

Steingraber, Sandra. *Having Faith: An Ecologist’s Journey into Motherhood*. Cambridge, MA: Perseus, 2001.

———. *Living Downstream: An Ecologist’s Personal Investigation into Cancer and the Environment*. Cambridge, MA: Da Capo, 2010.

- Swerdlow, Amy. *Women Strike for Peace: Traditional Motherhood and Radical Politics In the 1960s*. Chicago: University of Chicago Press, 1993.
- Terry, Paul, Craig V. Towers, Liang-Ying Liu, Angela A. Peverly, Jiangang Chen, and Amina Salamova. “**Polybrominated Diphenyl Ethers (Flame Retardants) in Mother-Infant Pairs in the Southeastern U.S.**” *International Journal of Environmental Health Research* (2017). <https://DOI.org/10.1080/09603123.2017.1332344>.
- Tobin, Kathleen A. “The Reduction of Urban Vulnerability: Revisiting 1950s American Suburbanization as Civil Defense.” *Cold War History* 2, no. 2 (2001): 1–32.
- Todd, Jeff. “Scientists Debate Rocky Flats Safety.” 4 CBS Denver, July 27, 2017. <http://denver.cbslocal.com/2017/07/27/rocky-flats-plutonium>.
- Wo, Jennifer Y., and Akila N. Viswanathan. “The Impact of Radiotherapy on Fertility, Pregnancy, and Neonatal Outcomes of Female Cancer Patients.” *International Journal of Radiation Oncology, Biology, Physics* 73, no. 5 (2009): 1304–1312.
- Wu, Song, Scott Powers, Wei Zhu, and Yusuf A. Hannun. “Substantial Contribution of Extrinsic Risk Factors to Cancer Development.” *Nature* (2015). <https://doi.org/10.1038/nature16166>.