Wes McKinley’s unsuccessful effort to get any warning signs at the Refuge does not mean no signs. FWS itself adopted wording for signs that it intends to post. Each sign will acknowledge that during production years “plutonium and other contaminants were released into the environment.” The signs will further state that an extensive EPA and CDPHE evaluation of contamination shows the following:

“The levels of contamination on refuge land are low, meet conservative state and federal cleanup standards, and are similar to adjacent lands. Both EPA and CDPHE have determined that the land is safe for public recreation, refuge workers, and resident wildlife. The refuge workers, the people most exposed to this environment, have a maximum lifetime increased cancer risk of about 2 in a million due to residual contaminants. Environmental health risks to refuge visitors, including children, are far lower than that.”

This FWS language downplays danger, claims safety and denies informed consent. I counter it in the foregoing pages by showing, first, that existing radiation exposure standards are inadequately protective; second, that important data about site conditions were not considered in the “cleanup” at Rocky Flats; and, third, that risk is always present at Rocky Flats and that where there is risk there will be some harm.

**Testing breathable dust blowing off the Wildlife Refuge for plutonium content:**
Breathable dust in surface soil has never been routinely tested for its plutonium content on the Rocky Flats site, though Carl Johnson pioneered sampling dust for plutonium in off-site areas in 1975 (see pp. 45-46). He showed that sampling only surface dust isolates the tiny plutonium particles that can be suspended in the air and be inhaled, the worst way to be exposed to plutonium. To protect public health plutonium particles in surface dust need to be isolated and measured, so we at least have a better sense of the danger. The state’s method of sampling only whole soil dilutes plutonium content by mixing it with heavier gravel and soil that cannot be suspended by the wind. Breathable particles are the critical part.

In the spring of 2009 I urged FWS, as the government agency now responsible for the Wildlife Refuge, to hire independent scientists to collect samples of breathable dust from the surface soil at various locations on the site and to analyze the samples for plutonium content. I encouraged them to establish a program to do such testing periodically, because plutonium in soil at the site can be randomly made available to strong winds in the area by the actions of animals, plants, water, humans and wind itself. Results from this kind of sampling would show to what extent plutonium is present in breathable particles at the time of sampling. Any plutonium released from the DOE land – 1,309 acres surrounded by the Refuge – could be carried by wind onto the Refuge. The response of FWS was to pass the buck to CDPHE. Hearing nothing from them, I published an op-ed on January 10, 2010, urging CDPHE to establish a permanent program to take discrete samples of breathable dust from surface soil at Rocky Flats and test them for plutonium content.

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Four days later, January 14, 2010, Carl Spreng of CDPHE sent an email message rejecting my proposal, because it “doesn’t take into account new technologies and methods.” But in fact “new technologies and methods” for sampling dust for plutonium were introduced back in 1975 by Carl Johnson who urged the state to adopt his innovative dust sampling method. They turned him down (see pp. 44-45). But now Spreng was defending the state’s soil sampling practice as if it was new, though Johnson had found it faulty in 1976. “We continue to be confident,” Spreng wrote, “that the refuge is safe for public access.” I responded to him on January 20: “Given that the Rocky Flats site was not cleaned to the maximum extent possible with existing technology, and given that an unknown quantity of plutonium in the form of fine particles remains in the soil there and that some of it is likely at any time to be brought to the surface by burrowing animals, and given that the National Academy of Sciences 2006 BEIR VII study (Biological Effects of Ionizing Radiation) concluded that any exposure to ionizing radiation is potentially harmful, calling the Rocky Flats wildlife refuge ‘safe’ is an extreme statement. Would it not be more accurate to acknowledge that visiting the refuge entails some risk, even if it’s a level of risk that government agencies find acceptable?”4 He did not respond.

A few weeks later we at the Rocky Mountain Peace and Justice Center hired Todd Margulies, a local man experienced in this field, to collect dust samples. On April 14, 2010, he and I collected samples that were sent for analysis to specialist Marco Kaltofen, P.E., of the Boston Chemical Data Corp. in Natick, MA. Two observations. First, we collected no samples on the Rocky Flats site because we were denied permission to go there. Second, our sampling was done during an exceedingly dry period after several days of very high wind. I assumed the sampling would be a simple matter of picking up loose soil or dust on the leeward or downwind side of slopes, plants, fence posts and the like. I thought our problem would be too many sampling opportunities rather than too few. But as soon as we began to look in obvious places over an area of several dozen acres we discovered that the fabled wind at Rocky Flats had scoured the surface, leaving land hard, dry and devoid of expected dust and loose soil. John Till of Risk Assessment Corp., who for more than two years did scientific research at Rocky Flats on soil cleanup levels, said that plutonium left in the soil there would eventually blow away. When searching for sampling locations I felt I was seeing the reality of which he spoke.

The day Todd Margulies and I were collecting samples I spoke to a woman who lives near Rocky Flats about our inability to take dust samples because the wind had removed all dust from the soil. She immediately said, “If you want a little dust that hasn’t blown away, look for yucca plants. You’ll find the dust you’re looking for in a little pocket at the base of these plants. Their lower branches are so close to the ground the wind can’t remove dust and gravel that settles beneath them.” We found yucca plants in abundance on the Westminster open space just across Indiana St. from the Rocky Flats site. We were able to collect samples at the base of these plants. The samples contained plutonium that had blown there from the Rocky Flats site just across the street, refuting the CDPHE claim that there is no pathway by which plutonium on the site can reach visitors at the Refuge.

When I speak in public about the plutonium in the environment at Rocky Flats I often tell people there’s one sure-fire way to end their worries about plutonium: DON’T BREATHE. Don’t breathe, because the worst way to be exposed to plutonium is to inhale a particle or two. They will lodge in your body, I tell people, and as long as they are there – in a lung, your liver, bone, your brain or elsewhere – they will constantly irradiate surrounding tissue. This may result 20 or 30 years later in cancer, a compromised immune system or genetic damage that can be passed on to offspring. No one wants this. So, don’t breathe. If you don’t breathe you are much less likely to take plutonium into your body, though it can also be internalized through an open wound, whence it will be transported by the blood to a

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4 Email message, Moore to Spreng, 1-20-10.
place where it can take up lodging and do the same harm as from breathing. As long as we're alive we'll breathe, which means that if unseen plutonium particles are wafting on the breeze we are likely to inhale some. And there the problem begins. It isn't absolutely certain that our health will be harmed, but we have entered the land of risk, and the risk may prove harmful. The winds at Rocky Flats can deliver plutonium to us (see Figure 8.6).

Figure 8.6: June 17, 2010, at the NE corner of Candelas, the day they began moving dirt for construction of houses (see pp. 98-101). Dust blows off the Rocky Flats site, its boundary 20 feet behind me. I stand on land the Jefferson Parkway will traverse if it is built. Photo by Robert Del Tredici.

**The proposed Jefferson Parkway:** The Rocky Flats National Wildlife Refuge Act states that a strip of land up to 300 feet wide “along the eastern boundary of Rocky Flats” could be made available “for the sole purpose of transportation improvements along Indiana Street.” This strip of land is the route now proposed for the Jefferson Parkway, a privately financed toll road (see Figure 8.7). For 50 years developers and others have dreamed of a highway that would complete the 470 beltway around Denver. The Jefferson Parkway is the latest manifestation of this dream. The proposal to build such a road is very controversial because of concerns that construction of a highway near Rocky Flats would stir up plutonium. Earlier efforts to build a highway in this area repeatedly came to naught. In 1989 construction of a toll highway in the Rocky Flats area was put to a vote; it lost by a 4-to-1 margin.

In 1970 AEC scientists P. W. Krey and E. P. Hardy mapped the distribution of plutonium released from Rocky Flats into the environment on and near the site (see Figure 8.7). Their map is based on their soil sampling at a depth of 20 centimeters (7.9 inches) in downwind areas. The route proposed for the Jefferson Parkway passes through the area they show to be the most heavily contaminated with plutonium. By contrast with Krey and Hardy, maps produced for the “cleanup” completed at Rocky Flats in 2005 show only a scant presence of plutonium along the eastern edge of the site. But these maps are based on

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5 [http://www.rockyflatssc.org/rf_refuge_bill_approved_12_01.pdf](http://www.rockyflatssc.org/rf_refuge_bill_approved_12_01.pdf) See Sec. 3174 (e).


7 See [http://www.mesalek.com/colo/denvers470.html](http://www.mesalek.com/colo/denvers470.html)
sampling only of surface soil, not the deeper sampling that Krey and Hardy had done. Some plutonium in shallow soil when Krey and Hardy did their work in 1970 has undoubtedly long since blown away or has percolated down somewhat so that it is no longer on the surface. Much of the plutonium in what they showed to be high concentrations along Indiana Street should still be there.

Figure 8.7: This 1970 map by AEC scientists P. W. Krey and E. P. Hardy showing plutonium contamination in soil on and near the Rocky Flats site has appeared earlier in this study. The one addition here is the dotted red line that is the route proposed for the Jefferson Parkway. Note that it passes through a highly contaminated area.

In September 2011 the Rocky Mountain Peace & Justice Center commissioned Marco Kaltofen of the Boston Chemical Data Corp. and his colleague Strongbear to collect samples on the route of the proposed Jefferson Parkway. Because U.S. Fish & Wildlife Service denied a request that they be allowed entry onto the Wildlife Refuge, Kaltofen and Strongbear sampled soil along Indiana St. just outside the Refuge fence. They took 19 samples from surface soil plus 3 at a depth of 12 inches and 1 at a depth of 6 inches. They found that plutonium concentrations in their 2011 study area were roughly equivalent to concentrations found in the same location in 1970 by Krey and Hardy. According to Kaltofen, “There was no statistically significant difference between this data set and the 1970 data set. Plutonium losses appear to be approximately equal in magnitude to plutonium inputs [from upwind portions of the site] in the Indiana St. area.” In other words, either what he found in 2011 was the same plutonium Krey and Hardy found in 1970 or enough plutonium had blown to Indiana St. from upwind areas of the site to keep the 2011 level roughly equal to that of 1970. In either case, this is not good news.

Things heated up in June 2012 when FWS held a public hearing on whether or not it should do an Environmental Impact Statement (EIS) on the Jefferson Parkway. The National Environmental Policy Act (NEPA) requires that before any agency of the federal government can undertake an action that may adversely affect the environment, it must produce an EIS that includes detailed analysis of likely effects of the contemplated action. In 2004, three years before it gained possession of the land that would become the Rocky Flats

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8 See [http://leroymoore.wordpress.com/2012/02/10/pusamplingjeffpkwyfnwr/](http://leroymoore.wordpress.com/2012/02/10/pusamplingjeffpkwyfnwr/)
National Wildlife Refuge, FWS conducted an EIS on the Refuge, but this EIS totally ignored the question of environmental effects of constructing a highway along Indiana Street.

About 100 people were present at the June 2012 hearing. No one spoke in favor of the highway, and all called for a full-fledged EIS to determine effects on humans and wildlife of building the highway. While waiting to see what FWS would do, things became confusing in a hurry. The City of Golden and Jefferson County persuaded the City of Boulder and Boulder County to end their long-time opposition to the highway as part of a deal that would allow FWS to make its strip of land available for the highway while adding to the SW corner of the Refuge a square-mile piece of land called Section 16. This enlargement of the Refuge would block further urban sprawl northward along Hwy. 93 toward Boulder, something Boulder City and County both wanted (for the location of Section 16, see Figure 8.4 on p. 103).

In October 2012 FWS, without doing an extensive study, issued a ‘Finding of No Significant Impact,” vetoing an EIS and giving itself permission to transfer land for the highway. The very next day Golden, Superior and two environmental groups, Rocky Mountain Wild and Wild Earth Guardians, filed suit in federal court to require FWS to do an EIS before transferring land for the Jefferson Parkway. Late in 2012 a federal judge issued the injunction. But he then was told that the deal for FWS to receive Section 16 had a deadline of midnight on the last day of the year. The land transfer would collapse if the deadline was not met. Thus, in the midst of judicial shifting, on December 31, 2010, the judge lifted the injunction. FWS received Section 16 and ceded a 300-foot wide strip of land along Indiana St. to the Jefferson Parkway Public Highway Authority.

Though land was transferred, whether the highway will be built is not certain. Some time later, the court ruled in favor of FWS, that there was no requirement for them to do an EIS on the Parkway. But this does not mean the Jefferson Parkway will be built. Several years ago the Denver Regional Council of Local Governments (DRCLOG) agreed to add the Jefferson Parkway to its transport master plan on one condition: No federal or state tax money can be spent to build the road. Recent reports are that investors are not gambling on the possibility of this road. Widespread opposition to the road undoubtedly makes some skittish about investing in it. The Jefferson Parkway thus may fail due to lack of funding. As of this writing in September 2015, efforts are being made by road supporters to get public funding for the road. Is this only a move of desperation? Or are they likely to get a reversal of the earlier DRCLOG decision? Meanwhile, the longer the road is delayed the stronger the cultural shift away from private automobiles to public transit.

**Residential development near Rocky Flats:** Is it wise to live near Rocky Flats? This question was asked by Carl Johnson, MD, Director of Public Health for Jefferson County. He answered with a 1981 study that showed decidedly higher cancer rates among people living in areas contaminated by plutonium released from Rocky Flats (see pp. 47-48). More recently the question has come up for people wondering if they should move into new residential developments near the Rocky Flats site, especially Whisper Creek, immediately SE of the site, and Candelas, where dwellings are now being built along the southern edge of the Rocky Flats site (see Figure 8.8).
Michelle Gabrioloff-Parish, a professional woman, mother of two children and wife of a university professor, lives in Superior, about two miles NE of the Rocky Flats site. In recent discussions about the proposed Jefferson Parkway she learned about the history of the plant and the contaminated environment. Then she heard about Candelas, one of largest residential developments in Colorado history, where several thousand dwellings as well as commercial and business facilities are being constructed along the southern edge of the Rocky Flats site. As beautiful as it is, she knew she’d never move her children into such a place. She started the Candelas Glows web site to educate others and to alert them to the dangers of living so close to the site of the former Rocky Flats nuclear bomb plant. Soon she had a host of new friends, and they began going to Candelas on weekends with signs and banners and handouts packed with information about why in their view no one should live so close to Rocky Flats. Their visits attract a lot of attention – of the media, of people looking at new houses but also of those who manage the development. The police came. Michelle and her companions were told that as long as they didn’t block traffic, stayed on public sidewalks and did not trespass, they would not be bothered. They are very good-natured. Prospective buyers learn from them new information. They undoubtedly are influencing people. Candelas has become much better known as a result of Candelas Glows (see Figures 8.9 and 8.10).

9 http://candelasglows.com