

## 8. THE ROCKY FLATS NATIONAL WILDLIFE REFUGE

**Background to the Rocky Flats National Wildlife Refuge:** I noted in the preceding chapter that DOE, EPA and CDPHE decided to turn most of the Rocky Flats site into a wildlife refuge. “Cleaning” the site to wildlife refuge specifications would be much cheaper than cleaning it for residential or commercial use. Those who made this decision, however, were quite unrealistic. They acted as if protecting a wildlife refuge worker would protect everyone else for as long as plutonium remains dangerous (its half-life is 24,110 years). They rejected the only cleanup proposals that actually provided protection long-term. In keeping with their shortsighted plans, in 2001 Congress passed the Rocky Flats National Wildlife Refuge Act, co-sponsored by then-Senator Wayne Allard and then-Representative Mark Udall. The Act mandated that after completion of the Superfund “cleanup” then underway the DOE would transfer about three-quarters of the Rocky Flats site to U.S. Fish & Wildlife Service (FWS) to manage as the Rocky Flats National Wildlife Refuge.<sup>103</sup>

**A mixed blessing:** Turning a major portion of the former bomb plant site into a Wildlife Refuge is a mixed blessing. It prevents (for the present at least) residential or commercial development on the site, which is a plus. But at the same time it opened the way to a cheaper and quicker “cleanup” that leaves a legacy of far greater risk than if the site had been cleaned to the maximum extent possible with existing technology. People now and into the long-term future are forced to live with the consequences.

**Environmental Impact Statement (EIS) for the future Refuge:** In February 2004 FWS issued a Draft EIS for the Wildlife Refuge. It outlined four alternative uses for the Refuge. The most protective of these is “Ecological Restoration,” which would limit public access to pre-arranged guided tours on a single 3,700 foot trail in the Rock Creek drainage in the NW portion of the site, upwind of the former industrial production area, main source of plutonium releases. Those who commented on the Draft EIS overwhelmingly favored this alternative. But the option favored by FWS, and eventually adopted by them, allows public access for hiking, biking, horseback riding, limited hunting, photography and wildlife observation. Several miles of trails would be constructed and made available for public use.

The most contentious issue regarding the future Wildlife Refuge was whether or not the Refuge should be opened to the public for recreational activities. Of the 1,280 parties that commented on the EIS, 81% opposed public access, while only 11% explicitly favored it.<sup>104</sup> The principal reason cited for opposing access was the risk of exposure to plutonium and other toxins left in the environment. FWS nevertheless adopted the option that allows maximum public access. By this action FWS guaranteed ongoing conflict with the public. The EIS established the rules that would apply once the “cleanup” was completed and land for the Refuge was transferred from DOE to FWS. After publication of the Final EIS in September 2004, with its declaration that public access to the Refuge would be allowed, I circulated a request for people informed and interested in the matter to send cartoons that might help others understand the meaning of what FWS had just decided. I will include three of these (see Figures 8.1, 8.2 and 8.3).

---

<sup>103</sup> See [https://www.google.com/?gws\\_rd=ssl#q=rocky+flats+national+wildlife+refuge+act](https://www.google.com/?gws_rd=ssl#q=rocky+flats+national+wildlife+refuge+act)

<sup>104</sup> These numbers result from my analysis of *Rocky Flats National Wildlife Refuge, Appendix H, Comments and Responses on the Draft Environmental Impact Statement* (September 2004), on line at [http://media.wix.com/ugd/cff93e\\_a9cff9a4c30b4ac5bbfa27e93b91a9bf.pdf](http://media.wix.com/ugd/cff93e_a9cff9a4c30b4ac5bbfa27e93b91a9bf.pdf)

FISSION WILDLIFE  
TO RUN  
ROCKY FLATS  
AS A WILDLIFE REFUGE



Passing the torch

Figure 8.1: DOE passes the radioactive Rocky Flats torch to “Fission Wildlife.” Cartoon by Robert Del Tredici. Wildlife is abundant at the site. When the plant was operating, workers often referred to the “hot rabbits” common at the site.



Figure 8.2: FWS will welcome “Kiddie Tours,” especially school kids, to the Refuge, once it is opened to the public. Cartoon by Tom Ferguson of Atlanta.

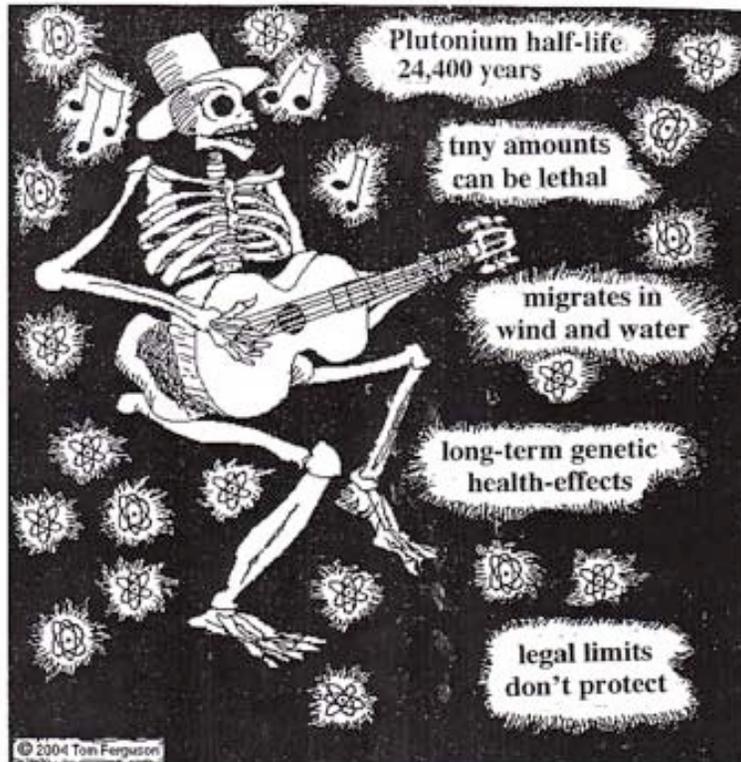


Figure 8.3: This cartoon by Tom Ferguson of Atlanta emphasizes problems with plutonium in the environment of the Rocky Flats National Wildlife Refuge.

**Creation of the Rocky Flats National Wildlife Refuge:** In 2006, soon after completion of the Superfund “cleanup” of the Rocky Flats site, the DOE transferred almost seven square miles of the nearly ten square mile site to the U.S. Fish & Wildlife Service (FWS) to operate as a Wildlife Refuge (see Figure 8.4). Though FWS decided to open the Refuge for public recreation, as of February 2015 it remains closed to the public because FWS lacks the funds to prepare the site for public access. Opposition to its opening continues. Biologist Harvey Nichols thinks every DOE weapons site that has a Superfund cleanup should be closed to the public for at least 200 years after completion of the cleanup. This would allow time for a fuller assessment of exposure to radiation and chemical toxins in the environment at such sites.

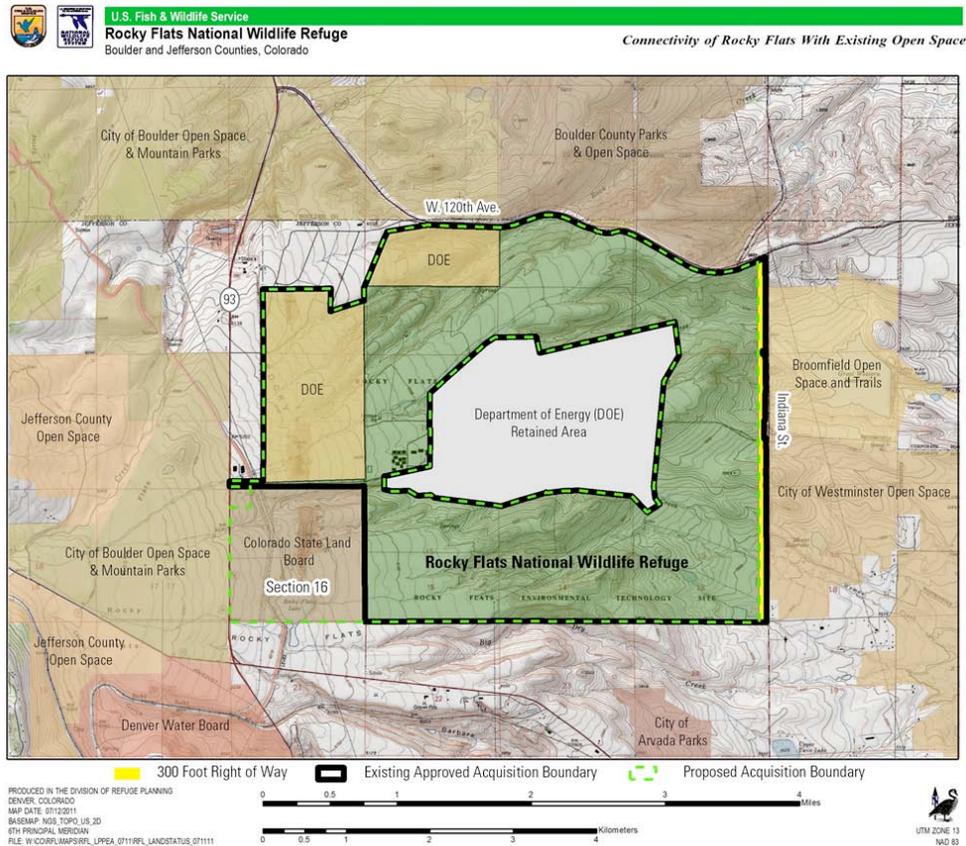


Figure 8.4: The green area on this map is the 4,465-acre (6.98 square-miles) Rocky Flats National Wildlife Refuge managed by FWS. DOE retains 1,309 acres (2.05 square-miles) in the center of the site, essentially the more contaminated former industrial area of the Rocky Flats plant. The DOE land remains on the Superfund list of contaminated sites. Private interests mine gravel in the tan plots; when their mining rights expire, these plots will be transferred to FWS. Section 16 in the SW corner was added to the Wildlife Refuge in December 2011 as part of the deal by which FWS ceded the 300-foot-wide yellow strip of land along the eastern edge of the site for the proposed Jefferson Parkway.

**Proposal to provide minimal informed consent for visitors to the Refuge:** After the FBI raided the Rocky Flats plant to collect evidence of alleged violation of environmental law a grand jury was convened to review the evidence. Wes McKinley, a Baca County rancher, was elected foreman of the grand jury. In their final report, as noted earlier, the jurors called Rocky Flats “an ongoing criminal enterprise” and sought to indict DOE and Rockwell officials. The judge instead dismissed the grand jury and reached an agreement with

Rockwell that dropped major charges against the company and gave them immunity from further prosecution. McKinley was disturbed. Then FWS declared that they would open the Wildlife Refuge to the public. This was too much. He could imagine people ignorant about Rocky Flats visiting the Refuge and being exposed to plutonium. He decided to get himself elected to the state legislature. Maybe he could do something positive regarding Rocky Flats.

After being elected to represent his district McKinley hit on the idea of requiring the state to post prominent signs at Refuge entries informing people that visiting the Refuge posed a risk of being exposed to radioactive material remaining in the environment. He made several attempts to get such a bill passed in the state legislature before he was term-limited. Several of us, including myself, testified several times at the State Capitol in support of his bill. It was opposed by Carl Spreng of CDPHE as well as by members of the Rocky Flats Stewardship Council tutored by Council Executive Director David Abelson. One year McKinley's bill passed in the House and was headed for the Senate. Then-U.S. Senator Mark Udall, co-author of the act that created the Rocky Flats Refuge, stepped in and told the head of the State Senate not to let this bill get out of committee and onto the floor in the Senate. Udall prevailed, and soon thereafter McKinley's term ended and he left the legislature, having failed to get warning signs at Rocky Flats (see Figure 8.5).



Figure 8.5: This sketch of the Rocky Flats National Wildlife Refuge shows FWS plans for entries and trails. The view looks west from Indiana Street toward Highway 93 that runs from Golden-to-Boulder with the mountains beyond. The Refuge occupies the darker green portion of the site, a total of 4,465 acres (6.98 square miles). The lighter green area in the center of the refuge is the 1,309-acre plot retained by DOE's Legacy Management program; it includes the more contaminated former industrial zone and parts of the site that are subject to ongoing maintenance and engineered controls. Had McKinley's bill passed, warning signs would have been posted at the six site entries indicated on the sketch.

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."<sup>105</sup>

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.<sup>106</sup>

### **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.<sup>107</sup> 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.<sup>108</sup>

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

---

<sup>105</sup> <http://www.fws.gov/rockyflats/Signage/Sign.htm>

<sup>106</sup> For an excellent summary of this history of plutonium contamination from Rocky Flats on and off the site, see [https://drive.google.com/open?id=11Wgs0JZnTwos7KoUetS\\_rfRNasj2iFLL](https://drive.google.com/open?id=11Wgs0JZnTwos7KoUetS_rfRNasj2iFLL)

<sup>107</sup> "Test the respirable dust at Rocky Flats," *Boulder Daily Camera*, June 11, 2009.

[http://www.dailycamera.com/ci\\_13124737?IADID=Search-www.dailycamera.com-www.dailycamera.com&IADID=Search-www.dailycamera.com-www.dailycamera.com](http://www.dailycamera.com/ci_13124737?IADID=Search-www.dailycamera.com-www.dailycamera.com&IADID=Search-www.dailycamera.com-www.dailycamera.com)

<sup>108</sup> "Playing with Plutonium at Rocky Flats," *Boulder Daily Camera*, January 10, 2010. [http://www.dailycamera.com/ci\\_14151325?IADID=Search-www.dailycamera.com-www.dailycamera.com](http://www.dailycamera.com/ci_14151325?IADID=Search-www.dailycamera.com-www.dailycamera.com)

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?"<sup>109</sup> 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 a hard, dry surface 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.

I spoke to a woman who lives near Rocky Flats about the inability of Todd and me 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 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 dust 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, gonads 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 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

---

<sup>109</sup> Email message, Moore to Spreng, 1-20-10.

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 SE corner of Rocky Flats, the day they began moving dirt for construction of houses at Candelas (see pp. 109-113). Dust blows off the Rocky Flats site, its boundary just 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.”<sup>110</sup> 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.<sup>111</sup> 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.<sup>112</sup>

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 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.

<sup>110</sup> [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).

<sup>111</sup> Informative article on the Parkway: Nicolene Durham, “Hot Particle Politics on the Rocky Flats Road,” at <http://www.theboulderstand.org/2013/07/16/hot-particle-politics-on-the-rocky-flats-highway/>

<sup>112</sup> See <http://www.mesalek.com/colo/denvers470.html>

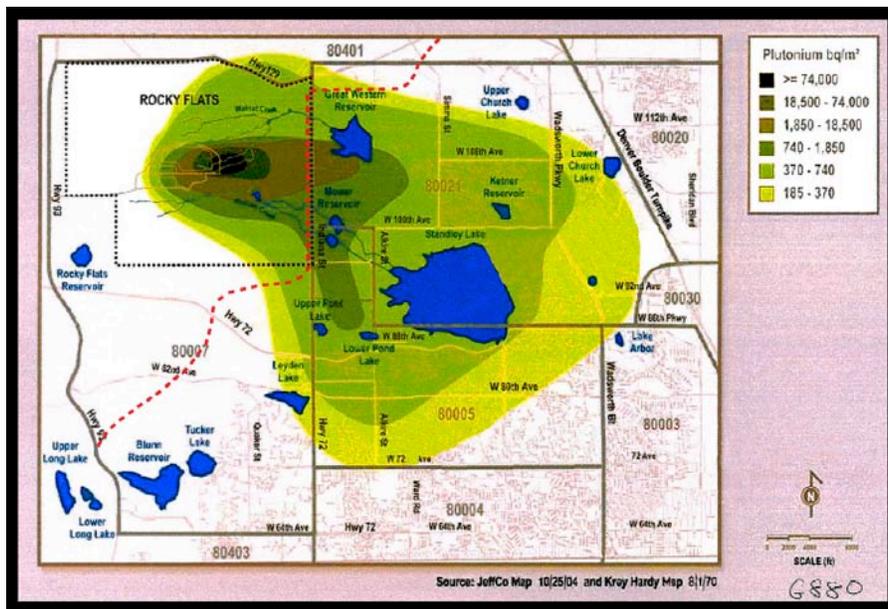


Figure 8.7: This 1970 map by AEC scientists P. W. Krey and E. P. Hardy showing plutonium contamination in soil on and near the Rocky Flats site has appeared earlier in this study. The one addition here is the dotted red line, the route proposed for the Jefferson Parkway. Note that it passes through a 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.”<sup>113</sup> 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 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

<sup>113</sup> See <http://leroy.moore.wordpress.com/2012/02/10/pusamplingjeffpkwyrfnwr/>

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. The case never went to trial. The judge apparently acted to meet the deadline. FWS received Section 16 and ceded a 300-foot wide strip of land along Indiana St. to the Jefferson Parkway Public Highway Authority. The Refuge was enlarged to almost 10 square miles.

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. 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 raised 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 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 and a school 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<sup>114</sup> Soon she had a host of new friends, and they began going to Candelas on weekends

---

<sup>114</sup> <http://candelasglows.com>

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,



Figure 8.8: This picture of the Whisper Creek development across Indiana St. immediately SE of the Rocky Flats site dates from June 2011, when construction of houses was underway. Whisper Creek is in an area shown by Krey and Hardy in 1970 to be highly contaminated with plutonium. Photo by Robert Del Tredici.

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, 8.10, 8.11 and 8.12).



Figure 8.9: Trail for biking, hiking or horseback riding that runs the whole length of the northern edge of the Candelas development, from Indiana St. on the east to Hwy. 93 on the west, a distance of almost 4 miles. Rocky Flats National Wildlife Refuge is just over the fence to the right. Newly constructed houses are visible to the left of the trail. The trail intersects with two of the planned entries to the Refuge. Photo by Jon Lipsky.



Figure 8.10: The Rocky Flats site NE from the Candelas trail (Figure 8.9), soon after completion of the “cleanup.” The cleared ground is the industrial area where structures have been removed and there is not yet any grass cover. The pavement ends at the fence where FWS expects to have a Refuge entry. Photo courtesy of Michelle Gabriloff-Parish.



Figure 8.11: Michelle Gabriloff-Parish, founder of Candelas Glows, stands with a horse sculpted by artist Jeff Gipe at the Candelas development near the Rocky Flats National Wildlife Refuge. The horse wears a red hazmat suit and a gas mask. It’s a windy day. Photo by Helen H. Richardson of *The Denver Post*.



Figure 8.12: People from Candelas Glows on one of their weekend visits to Candelas. Photo courtesy of Michelle Gabrioloff-Parish.

Michelle Gabrioloff-Parish believes it's unwise to live at Candelas and that it should be shut down. She wants the U.S. Government to purchase the whole Candelas development, all the houses and buildings and all of the land. People should be paid well for the dwellings they moved into, so they can relocate elsewhere. Candelas can become not a place to live but a monument to human folly. Who will implement her idea?

Several times a year I hear from people who wonder if it's wise to live near Rocky Flats. The most valuable exchange I have had on this topic was with a woman who about a year before writing to me had moved with her husband and two-year old daughter into a new house in the Whisper Creek development across Indiana St. and immediately SE of Rocky Flats. She only recently had learned of possible dangers of living in the area. She was expecting another child. Because of the searching quality of her questions, I asked her if I could share our correspondence with others, provided I not use her name or give the location of the house she and her family occupied. She agreed. With her permission I posted a verbatim copy of our very extensive correspondence on my blog. It is a very moving example of thinking in action on the part of herself and her husband. I could not tell them what to do, only what I would do if in their situation. In the end, they sold their house to someone who had grown up near Rocky Flats and had no concerns about it. But most poignant is the exchange she had with her daughter.<sup>115</sup>

In July 2013 Candelas attorney Jonathan G. Pray sent letters to both Michelle Gabrioloff-Parish of Candelas Glows and LeRoy Moore of the Rocky Mountain Peace and Justice Center ordering them to cease and desist making defamatory statements about Candelas or end up in court. Environmental attorney Randall Weiner responded with a letter on behalf of RMPJC. He berated Pray for threatening a SLAPP suit (strategic lawsuit against public participation), a suit filed by a company against citizens engaged in political

<sup>115</sup> See <https://leroymoore.wordpress.com/2013/07/18/questions-about-living-near-rocky-flats-2/>

activity that threatens the company's interests. He told Mr. Pray RMPJC had made no false statements and had done nothing illegal and that he would be glad to defend the organization in court. He cited evidence that most SLAPP suits are thrown out of court while counter-SLAPPs brought by defendants almost always win, often with staggering fiscal payments.<sup>116</sup> No more was heard from Mr. Pray.

**Scandal: FWS plans a “prescribed burn” at the Rocky Flats Wildlife Refuge:** No issue has so quickly rallied opposition to FWS as their plan to do a “prescribed” burn of 701 acres at the Refuge near Candelas in the spring of 2015. FWS did not announce that they intended to do the burn. They never held a public meeting to describe their plans. Though the CDPHE approved the burn, they never held a publicly announced meeting on this topic. Further, the EIS done on the Refuge in 2004 does not deal with burning on a radioactive site.

I learned about the proposed burn quite accidentally in reading a report of the Rocky Flats Stewardship Council in the fall of 2014. Because of the plutonium in the environment I thought their proposed burn was exceedingly careless and must be stopped. I did something I had never done before, posted a MoveOn petition urging people to sign this statement:

U.S. Fish & Wildlife Service must cancel the “prescribed burn” planned for the Rocky Flats National Wildlife Refuge in the spring of 2015. Doing the burn will endanger public health by releasing plutonium particles.

Every time someone signed the petition the person's name and any accompanying comments went to David Lucas, head of the Rocky Flats Refuge; James Kurth, then Chief of the National Wildlife Refuge System; as well as Colorado's two Senators and two members of the House of Representatives. Opposition to the burn grew quickly. The Rocky Flats Technical Group of which I am a member got David Lucas to agree to a meeting for January 28, 2015. But at the last moment he canceled after he was told media and a lawyer might be present. The very next day, January 29, FWS canceled the burn. By this time 2,780 people had signed the petition.

Getting the burn canceled was a big boost. A federal agency was paying attention. At the same time, however, they said they were only postponing the burn. They would do burns in the future at Rocky Flats. I published an op-ed on February 20, 2015, emphasizing that the tradition of risk from plutonium exposure that had existed since production began at Rocky Flats in 1952 needed to end, and now is the time to end it. There should be no burns at the site, because any burn would release plutonium. It's not a simple matter of saying no to burns, however. Wildfires of accumulated brush can be caused by lightning or human carelessness, such as a tossed cigarette. Measures to prevent this must be taken.<sup>117</sup>

The plutonium-contaminated Rocky Flats site should have no burns. Invasive vegetation can be targeted with beetles that destroy the ability of these plants to reproduce. Routine mowing or grazing with goats will reduce burnable debris and minimize wildfires from human or natural causes. Affected people and their allies need to work closely with FWS to find solutions that end the risk. We asked for a meeting with FWS to discuss all aspects of troublesome vegetation and preventing burns. FWS did not respond.

Several members of the Rocky Flats Technical Group got a discussion on the proposed burn with the Colorado Air Quality Control Commission. There they were told that

---

<sup>116</sup> For an informative article on this, see <http://www.coloradoindependent.com/145376/toxic-suburbia-fantastic-rocky-flats-vistas-plutonium-breezes>

<sup>117</sup> [http://www.dailycamera.com/guest-opinions/ci\\_27562074/leroy-moore-burn-canceled-whats-next](http://www.dailycamera.com/guest-opinions/ci_27562074/leroy-moore-burn-canceled-whats-next)

before FWS could do a controlled burn at the Wildlife Refuge they would have to request permission and that there would be a public hearing that the Technical Group could attend before any grant for a burn was provided.

**Wildlife at the Refuge:** In its 2004 Environmental Impact Statement FWS stated that they would allow limited hunting for deer at the Rocky Flats National Wildlife Refuge. Later that year they released results of a deer tissue study done to determine if deer on the Rocky Flats site “are safe for human consumption.” The conclusion was that they are “as safe for human consumption as venison taken offsite.” With tissue samples collected from 85 deer, 16 had “detectable levels of plutonium, americium, or uranium.” All the deer were nevertheless regarded as safe for humans to eat.<sup>118</sup>

Among the abundant wildlife present at the Refuge is one endangered species, the Preble’s Meadow Jumping Mouse, which inhabits streams that drain the site (see Figure 8.13). Among animals most likely to be seen, besides deer, are elk (see Figure 8.14). When snow is abundant at higher elevations in the mountains to the west, elk come to lower elevations and often visit the Refuge.



Figure 8.13: The Preble’s Meadow Jumping Mouse, listed among the Endangered Species, resides in the Rocky Flats National Wildlife Refuge.



Figure 8.14: Among the many wildlife that visit the Rocky Flats Wildlife Refuge are elk.

<sup>118</sup> <http://www.fws.gov/mountain-prairie/pressrel/04-87.htm>

Two paragraphs back I mentioned a FWS study to determine whether it is safe for humans to eat deer killed on the Rocky Flats site. How about the health of the animals themselves? Ecologist K. Shawn Smallwood, who studied wildlife at Rocky Flats, pointed out that no wildlife there or at any other DOE site where nuclear waste is present in the environment have been studied to determine the genetic effect of radioactive material on the health of the animals. Given the evidence of contamination and potential danger to exposed wildlife, he and his colleagues “found it remarkable that no genetic studies or rigorous animal population studies have been conducted.” The actual environmental impact with regard to “frequency of genetic mutations, birth defects, and mortality” of affected species thus “remains largely unknown.”<sup>119</sup>

Genetic specialist Diethard Tautz says that effects of radiation exposure on a given species of wildlife may not be readily apparent in individuals of that species until the passage of several generations. He calls this a “genetic uncertainty problem.”<sup>120</sup> This finding suggests that wildlife at Rocky Flats could in the long-term be hurt by conditions at the site, but they are not being watched closely enough for us to know (see Figure 8.15).



Figure 8.15: This image, conceived by John Farrell and designed by Stephanie McMillan, is a good reminder that no genetic studies of wildlife have been done at Rocky Flats. The image was originally made for T-shirts available from Rocky Flats Nuclear Guardianship.

<sup>119</sup> Smallwood et al., “Animal Burrowing Attributes Affecting Hazardous Waste Management,” *Environmental Management* (1998), vol. 22, no. 6, p. 834.

<sup>120</sup> Tautz, *Trends in Genetics*, vol. 16 Nov. 2000), pp. 475-477.

**Humans at the Refuge:** As noted above, FWS plans to allow public access to the Refuge as soon as it has the funds to build the infrastructure of entries and trails. A March 25, 2015, memo from the Rocky Flats Stewardship Council stated that DOE and FWS “are in the early stages of planning a Rocky Flats visitor center. The visitor center will most likely be located on the Rocky Flats National Wildlife Refuge, and will serve both federal agencies.” The Visitor Center, apparently to be funded by DOE, is a step toward opening the Refuge to the public. This must not happen, because of the plutonium contamination that remains in soil both at the Refuge and at the 1,309 acres of DOE-retained Superfund site that the Refuge surrounds (see Figures 8.16 and 8.19).

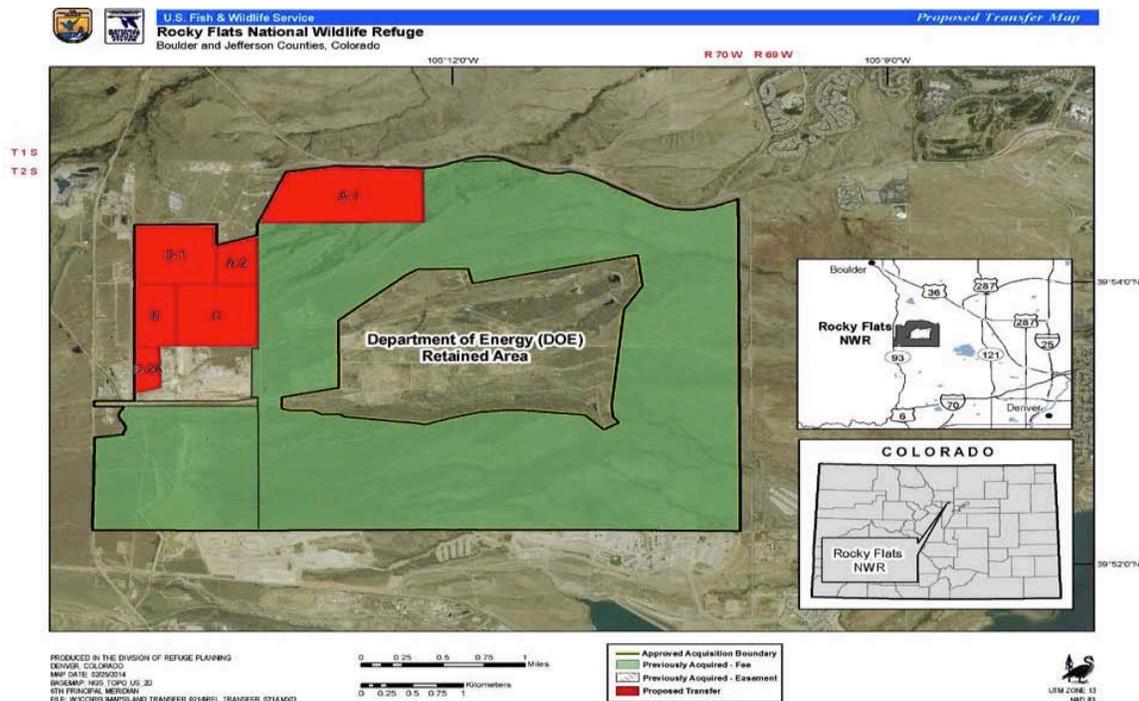


Figure 8.16. The 2015 map shows land that was recently added to the Rocky Flats National Wildlife Refuge. The Refuge now includes the green and red parcels on this map, an area of 9.75 square miles. The Refuge surrounds a plot of 1,309 acres (about 2.05 square miles) retained by the DOE. The DOE land remains on the Superfund list of contaminated sites. The Refuge was removed from the Superfund list when the cleanup was finished.

Congress in 2000 passed legislation to compensate workers whose health was harmed by workplace exposures at Rocky Flats and other DOE nuclear weapons sites. Congress needs to show the same level of care for the wholly innocent unknowing individuals whose health may be harmed if they visit the Rocky Flats National Wildlife Refuge. Potential visitors to the Refuge differ from former Rocky Flats workers in several respects.

- They will not be informed that being at Rocky Flats poses a risk.
- No special measures will be taken to protect them; they will not wear radiation detection equipment as was required of many nuclear workers.
- No record will be kept of their possible exposures.
- Their future health will not be monitored.
- If their health is harmed due to exposure to plutonium or other toxins at Rocky Flats, the source of the problem almost certainly will remain unknown.

- The government will not provide medical care or compensation for their ill fortune.

If public access occurs at the Rocky Flats Wildlife Refuge, FWS will welcome children. Of all potential visitors to the Refuge, a human child is the most vulnerable.

Consider:

- A child is more likely than an adult to stir up dust, to eat dirt, to breathe in gasps, or to scrape a knee or an elbow, all ways of taking particles of plutonium into the body.
- Since a child's body is smaller than an adult's, internalized plutonium has much less mass in which to be distributed or to concentrate.
- The alpha radiation emitted within a child's body integrates with that child's growth and tissue development.
- By contrast to either adult humans or other beings, a child's normal life span provides far more time for internalized alpha radiation to harm her or his health.
- U.S. Fish & Wildlife and the Rocky Flats National Wildlife Refuge will disappear long before plutonium in the site environment ceases to be radioactive. It is thus likely after fences fall and memory fades that families with children will live on the site without any knowledge of the invisible danger they face (see Figure 8.17).

On behalf of our own children and of our grandchildren's children's children, the Rocky Flats National Wildlife Refuge must never be opened to the public.



Figure 8.17: Gabriel, grandson of my colleague, Judith Mohling. If the flower he has in his mouth came from Rocky Flats, it could be dusted with plutonium that he could inhale or otherwise take into his young body.

Congress should pass legislation requiring that after cleanup at a DOE Superfund site such as Rocky Flats the site will be designated open space that is closed to the public for not less than 250 years, during which time it will be monitored for toxins and radionuclides in the environment in tandem with ongoing research on human health effects of exposure to said toxins and radionuclides and establishment of standards for protection of those exposed.<sup>121</sup>

In the words of Terry Tempest Williams, "The eyes of the future are looking back at

<sup>121</sup> See Moore, Plutonium at the Rocky Flats National Wildlife Refuge: Who is protected? On line at [http://media.wix.com/ugd/cff93e\\_c1c37cd83365485185dbaab121066e90.pdf](http://media.wix.com/ugd/cff93e_c1c37cd83365485185dbaab121066e90.pdf)

us, and they are praying for us to see beyond our own time.”

**“Soft opening” of the Refuge:** The previous section detailed public health problems people visiting the Refuge would experience. In 2015 FWS initiated what it calls a “soft opening” to the Refuge. Every three months or so FWS will accompany about a dozen individuals to hike from the west entry of the Refuge to the restored remains of Lindsey Ranch along Coal Creek in the northwest portion of the site, a round-trip distance of about five miles through an area contaminated by years of spraying radioactive waste onto the ground as a means for disposal. The soft opening was done with no public discussion, though Daniel Ashe of FWS had promised Rep. Jared Polis at a Congressional hearing that FWS would involve the public.

**Rocky Mountain Greenway:** In February 2013 then-Secretary of the Interior Ken Salazar announced plans for the Rocky Mountain Greenway, an 80-mile trail for hiking, biking and horseback riding that would connect three National Wildlife Refuges in the Denver area – Rocky Mountain Arsenal, Two Ponds and Rocky Flats – to the Rocky Mountain National Park. According to the original concept, the Greenway would pass near the Rocky Flats National Wildlife Refuge, not through it. But in April 2016 FWS suddenly announced that the Greenway will enter the Rocky Flats Refuge and traverse land known since 1970 to be contaminated with plutonium-239 released into the environment from the now closed Rocky Flats plant. Figure 8.16 shows areas on and off the Rocky Flats site found to be contaminated with plutonium in 1970.

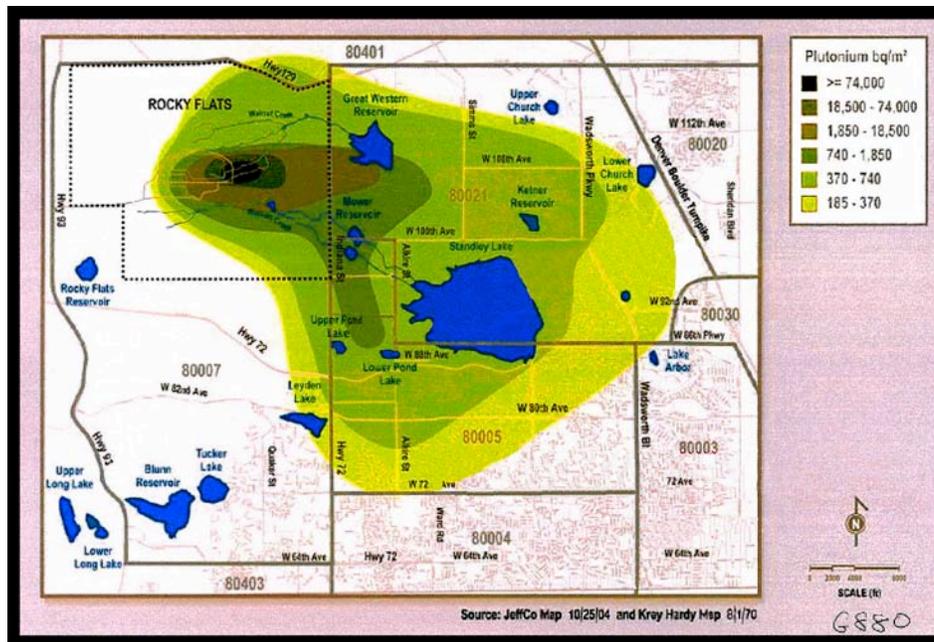


Figure 8.18: Distribution of plutonium contamination from Rocky Flats in becquerels per square meter (one becquerel equals one disintegration or burst of radiation per second). The amoeba-like isopleths show the pattern of windblown plutonium deposits. The original map was done by Atomic Energy Commission scientists, P. W. Krey and E.P. Hardy, “Plutonium in Soil Around the Rocky Flats Plant,” HASL 235, 1970.

Figure 8.19 shows the route proposed for the Greenway to enter and traverse part of the Rocky Flats site. Comparing the two maps, it is obvious that if the Greenway follows the route proposed it will pass through land shown in 1970 to be heavily contaminated with plutonium. Is this land still contaminated? In September 2011 Marco Kaltofen of the Boston Chemical Data Corp., under contract with the Rocky Mountain Peace and Justice Center,

sampled soil along the eastern edge of the Rocky Flats site and found the level of plutonium to be about the same as found in the same area by Krey and Hardy in 1970.<sup>122</sup>

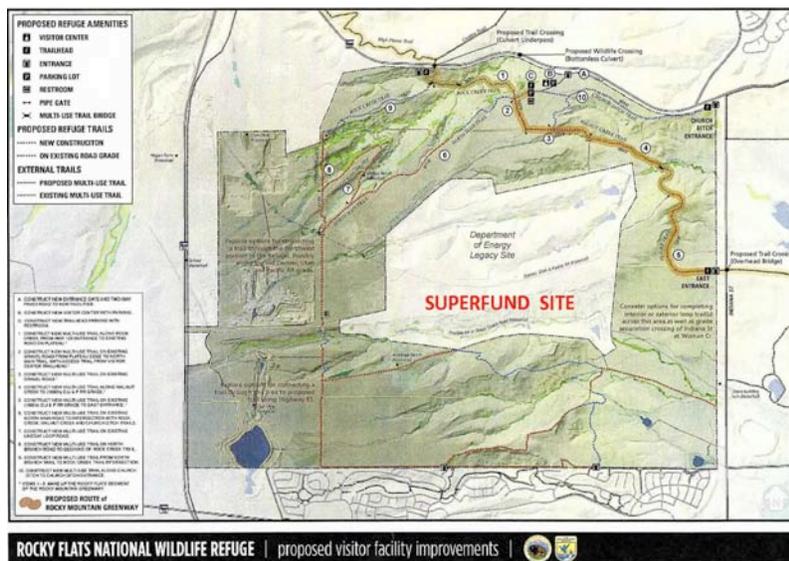


Figure 8.19: Map of the Rocky Flats National Wildlife Refuge with route proposed for the Rocky Mountain Greenway. The Refuge surrounds the more contaminated DOE Superfund site, from which contaminants can be expected to migrate onto Refuge land.

|| Because plutonium-239 has a half-life of 24,110-years, the area within the Refuge proposed for the Greenway will remain radioactive for more than a quarter-million years. Does this pose a danger to the public?

**Is the Refuge Safe?** The EPA and CDPHE, the regulators at Rocky Flats, often say that the site is “safe” because official exposure standards are not violated. But the standards of which they speak are not in fact protective, since by their very existence they allow some exposure. The Superfund cleanup done at Rocky Flats was not as thorough as it could have been. A 1995 closed-door deal between Congress and the DOE required that the cleanup be completed within a decade for a fixed sum (\$7 billion).<sup>123</sup> Enough contamination remains on the site to ensure exposure.

A 2006 report from the National Academy of Sciences concluded that any exposure to ionizing radiation is potentially harmful.<sup>124</sup> There is no safe exposure. In addition, scientists at Columbia University showed that a single alpha particle from plutonium taken into the body could be harmful, possibly fatal.<sup>125</sup> Once inside the body, the plutonium lodges in a

<sup>122</sup> Marco Kaltofen, MS, PE (Civil, Mass.), Report on the 2011 Rocky Flats sampling and analysis campaign, Boston Chemical Data Corp., January 23, 2012.

<sup>123</sup> Moore, “Rocky Flats: The bait-and-switch cleanup,” *Bulletin of the Atomic Scientists*, January-February 2005, pp. 50-57.

[http://media.wix.com/ugd/cff93e\\_7711d2b2a9d84f28ab1986706f1cda75.p](http://media.wix.com/ugd/cff93e_7711d2b2a9d84f28ab1986706f1cda75.p)

<sup>124</sup> *Health Risks from Exposure to Ionizing Radiation, BEIR VII Phase 2*, Washington: The National Academies Press, 2002, p. 246.

<sup>125</sup> Tom K. Hei et al., “Mutagenic effects of a single and exact number of particles in mammalian cells,” *Proceedings of the National Academy of Sciences*, vol. 94 (April 1997), pp. 3765-3770.

specific location and for the rest of one's life bombards nearby cells with radioactive alpha particles.

Hermann Muller received the 1946 Nobel Prize in medicine for his discovery of genetic mutations in fruit flies exposed to radiation. Toward the end of his life he published an article on the genetic effect of radiation exposures in humans. The biggest genetic problems, he said, are the cumulative effects of exposures “over a virtually unlimited period.” Adverse health effects may not be readily apparent until the passage of several generations when someone in the genetic chain will suddenly lose the ability to reproduce, resulting in “genetic death.” The damage to posterity will be massive. “Therefore the hereditary damage should be the chief touchstone in the setting of ‘permissible’ or ‘acceptable’ dose limits.”<sup>126</sup> What Muller called for more than a half-century ago has not happened.

According to the latest proposal for the Greenway, local governments are asked to help fund entries of the Greenway into the Refuge. The balance of the cost for the Greenway will be paid with a FLAP (Federal Land Access Program) from the Federal Highway Administration, which will build the Greenway. The map in Figure 8.19 shows that one entry to the Refuge crosses Indiana St. on the eastern edge of the Refuge and the other crosses Highway 128 on the northern edge of the Refuge. Only the Town Council of Superior rejected the plan for the Greenway to go through Rocky Flats. Boulder City Council favored it on the condition that additional soil sampling be done to show that the area is “safe” for the public to visit. All the other governmental entities – the Counties of Boulder, Jefferson and Broomfield, and the cities of Westminster, Golden and Arvada – favored the plan, with the proviso of additional sampling. The Commissioners of Jefferson County, which initiated the effort to get the FLAP grant, agreed that the Rocky Flats Technical Group would be at the table for drawing up protocols for the sampling plan.<sup>127</sup> The Technical Group, a body of individuals deeply experienced with Rocky Flats, came into existence in 2014, when FWS expected to conduct a prescribed burn on the site (see page 113). Its members address the full range of Rocky Flats issues.

On July 8, 2016, several members of the Technical Group met with Elijah Henley, Planning Team Leader on the Greenway for the Federal Highway Administration, to discuss the sampling issue. The following is my summary of the meeting:

1. Mr. Henley favors sampling, but only on the Refuge, not on the DOE Superfund site, which the Technical Group wants, because contaminants there will be released onto the Refuge (see Figure 8.17). He will draft a sampling plan and ask for our comment.
2. He agreed with us that the sampling will be done by an independent party, with the samplers following MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual) guidelines. MARSSIM was not followed in the Superfund cleanup.
3. Henley did not say who would cover the cost. Also, it's not clear that the sampling will be a permanent periodic process as the Technical Group proposes, with full sampling every five years as well as after any major event, such as a flood or earthquake.

---

<sup>126</sup> Hermann J. Muller, “Radiation and Heredity,” *American Journal of Public Health and the Nation's Health*, vol. 54, January 1964.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1254569/?page=9>

<sup>127</sup> Members of the Technical Group are Harvey Nichols, Jon Lipsky, Gale Biggs, Anne Fenerty, Michael Ketterer, Mary Harlow, Ted Ziegler and LeRoy Moore.

4. I believe Henley understood the necessity of air sampling, perhaps by sampling respirable dust on the surface of soil, as Carl Johnson had once done (see pages 45-46).
5. I gave him a statement with references showing that existing exposure standards are not protective, yet he insisted that the Refuge sampling will be done to show whether or not the plutonium cleanup standard for the top three feet of soil of 50 picocuries per gram of soil (pCi/g) is met. Jon Lipsky, who did not attend the meeting, said he would challenge this standard, since it was created only for the Superfund cleanup which ended in 2006. Obviously, we will have further discussion on this. Henley said that if the standard he mentioned is not met, the local government entities will not pay for connections to the Refuge.
6. No FLAP money will be spent on Refuge trails, only on the entries across Indiana St. and Highway 128. Henley said all trails on the Refuge, including a portion of the Greenway, will be paid for by FWS.
7. The Technical Group wants the Greenway to bypass Rocky Flats rather than go through the site. Henley later provided sampling protocols without reference to the Technical Group. He added the bypass as an alternative even if the Greenway also passes through the Refuge, which has not yet been determined. As I recall his remarks, people on the trail would see signs giving them the choice of bypassing or going through the Refuge. The route for the bypass would head north along the east end of Great Western Reservoir, cross Highway 128, then head west to connect with Boulder Open Space trail and on north toward Rocky Mountain National Park.

**Keep Kids Off Rocky Flats:** Questions about the Rocky Mountain Greenway occurred in the midst of varied attempts to settle contentious issues related to the Greenway, the Refuge and the DOE Superfund site. In mid 2016 the Rocky Mountain Peace and Justice Center responded to the Greenway proposal with the Keep Kids Off Rocky Flats (KKORF) campaign. This project began with a petition for people to sign calling on FWS not to encourage school field trips and family picnicking at the Rocky Flats Refuge. Because of the tradition of FWS getting school field trips to bring children to Refuges, KKORF is concentrating on getting the school districts to say they will not sponsor visits to the Refuge from schools in the district. Next, similar requests will be made to specific schools and teachers, then families. The decision to turn the Rocky Wildlife Refuge into a playground was a human decision. Human decisions can be reversed, and this one should be. As of June 2018, seven school boards have agreed not to take their students to the Rocky Flats Refuge.

**Lawsuit regarding the Refuge:** In May 2017 a lawsuit was filed in federal court to require FWS to follow rules of the National Environmental Policy Act (NEPA) before opening the Rocky Flats Wildlife Refuge to the public. Plaintiffs include RMPJC, Candelas Glows, Rocky Flats Right to Know, Rocky Flats Neighborhood Association and Environmental Information Network. The lawsuit seeks to block construction of trails and a Visitor Center until the government completes an up-to-date environmental analysis. FWS has publicly stated that construction will begin in June 2017.

NEPA requires public involvement to review decisions that affect the human environment. Federal agencies must explain the impact of their plans and justify all reasonable alternatives to proposed actions. Boulder attorney Randall Weiner, who is representing the plaintiffs explained, “The purpose of NEPA is to require an analysis of environmental effects before the agency’s actions are irreversible. By avoiding the NEPA mandate, FWS is virtually thumbing its nose at its obligations to consider the risks its plans pose to the public. The agency has waited too long to comply with its NEPA responsibilities.”

The suit also alleges violations of the National Wildlife Refuge Systems Administration Act.<sup>128</sup>

In addition to the lawsuit, attorney Weiner sought an injunction that would immediately halt activity on the Refuge, including receiving money to build the Visitor Center. Attorneys for FWS suddenly countered what FWS had previously said and told the court that no construction would occur at the Refuge until some time in 2018. The judge accepted their argument and rejected the move for an injunction. On July 13, 2017, this was appealed.

In addition to these aspects of the case, Refuge Director David Lucas announced in early July 2017 that he had given permission for about 200 prairie dogs in Longmont to be relocated on the Refuge. This was big news for newspapers and TV. We and other activist groups voiced our opposition, to protect the health of both humans and prairie dogs. We were ready to make this part of our lawsuit, but early on July 13, 2017, Jefferson County officials recommended not to move the prairie dogs to the Refuge. Evidently, County Commissioners have the final say. Efforts are afoot to find another home for the prairie dogs before they are killed by the developer who wants them off his land. Later they were killed.

Some of us involved in the lawsuit went to the Boulder Farmers Market on Saturday, July 15, 2017, to talk with people about issues related to the lawsuit. A man who stopped by told me that he had worked on the cleanup at Rocky Flats. “We had to sign a pledge that we wouldn’t reveal what we knew.” I asked if this meant that there were things DOE didn’t want the public to know. He said, “Yes,” and walked away.

A hearing on the Refuge was held in federal court in Denver on July 17, 2018. Attorney Randall Weiner assembled a very strong group of witnesses to challenge the claims of Fish and Wildlife. Their only witness was Refuge manager David Lucas. Federal Judge Philip Brimmer rejected our move, saying we had not shown that we experienced harm from the Refuge. But the heart of the case is our effort to require Fish & Wildlife to follow rules of the National Environmental Policy Act, including doing a new Environmental Impact Statement (EIS), since they have made numerous changes in the Refuge since their original EIS of 2003. FWS has announced that they intend to open the Refuge to the public in the fall of 2018. An oft-mentioned date is September 15, 2018.

---

<sup>128</sup> A copy of the legal complaint is available from [randall@randallweiner.com](mailto:randall@randallweiner.com)