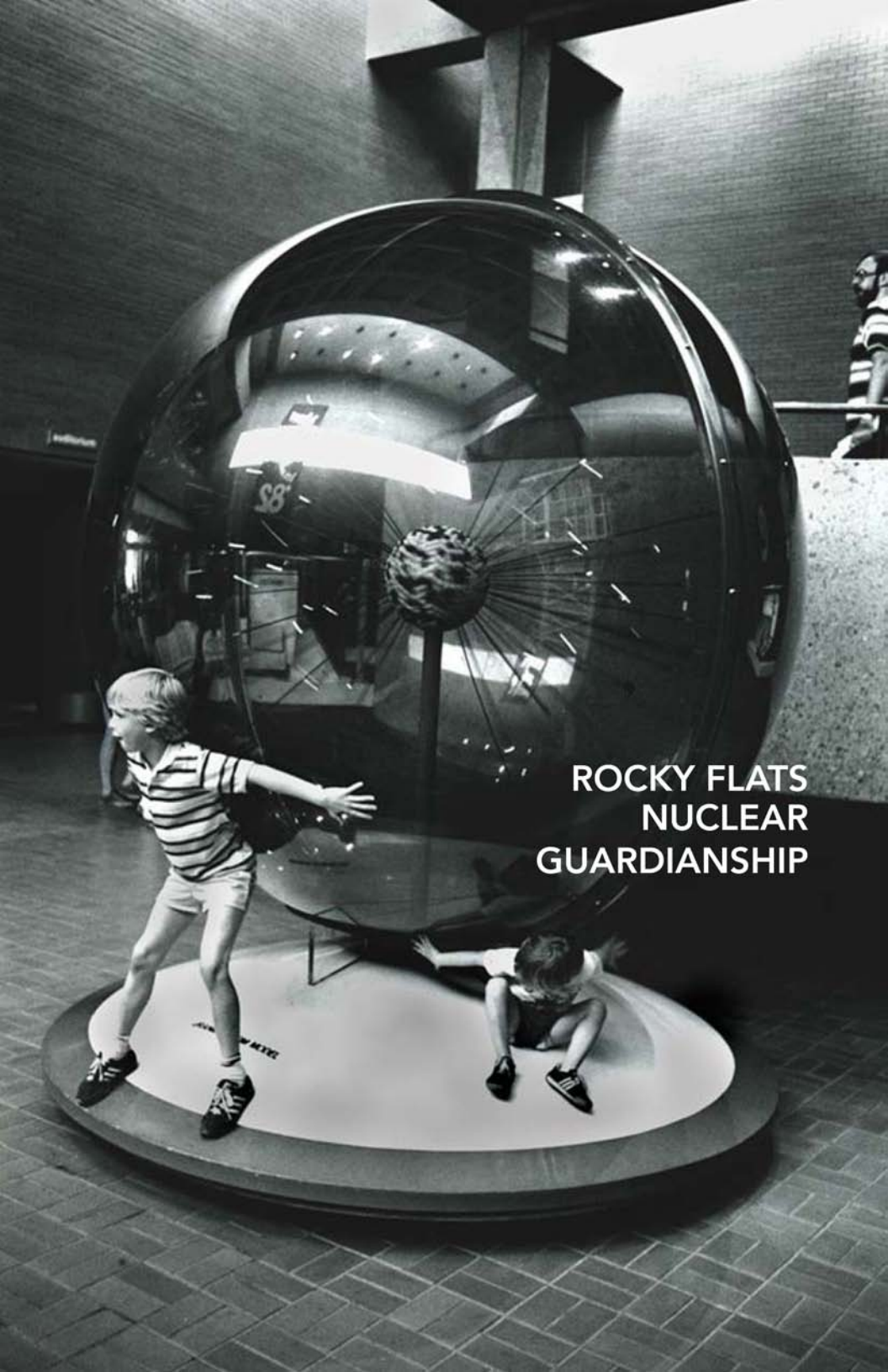


ROCKY FLATS NUCLEAR GUARDIANSHIP

TABLE OF CONTENTS

Cover photo:
Model of Uranium Atom
Robert Del Tredici, Atomic Photographers Guild

WHAT YOU NEED TO KNOW ABOUT ROCKY FLATS

Plutonium button or "puck," the raw metal that will be formed into a plutonium pit, the fissile core of a nuclear warhead, the principal product of Rocky Flats. Note that the hand holding the puck wears lead-lined gloves to provide protection from radiation.

Photo courtesy of the DOE.

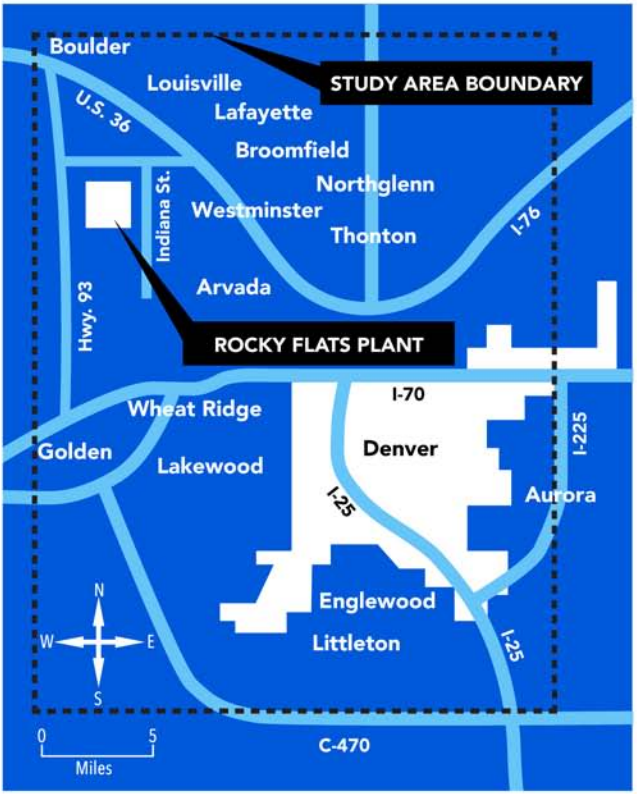
Rocky Flats was a U.S. nuclear weapons plant that produced more than 70,000 plutonium "pits" for nuclear warheads from 1952 to 1989.

A "pit" is the fissile core of a nuclear warhead; in hydrogen or thermonuclear bombs the fission explosion of a pit triggers the fusion of hydrogen atoms. A pit by itself is an atom bomb, such as the plutonium bomb that incinerated the city of Nagasaki on August 9, 1945.

Each pit (if fractured into breathable particles) contains enough plutonium to harm the health of every person on earth.

Most residents of Colorado were not aware of Rocky Flats' activities, and workers weren't allowed to talk about them.

Extensive contamination of air, water, and soil occurred in residential areas near Rocky Flats; frequent fires spread contaminants across the metro area.



The Rocky Flats Plant was located 16 miles NW of central Denver.

Map from *Summary of Findings: Historical Public Exposures Studies on Rocky Flats* (Denver: CDPHE, August 1999).

Selecting the Rocky Flats site was a fatal mistake because the wind there is severe, blowing at times 100 miles per hour toward Denver. In choosing the plant site, wind readings were taken not at Rocky Flats but 25 miles away at the old Stapleton Airport east of downtown Denver, where wind blew toward the mountains.

This truck was overturned by wind on highway 93 near the entry to Rocky Flats. Picture from *Rocky Mountain News*, Dec. 14, 1990.

WHAT YOU NEED TO KNOW ABOUT PLUTONIUM

All work with plutonium was done in gloveboxes. Keeping the plutonium inside the box isolates and protects the worker who can see it through a window and handle it wearing lead-lined gloves. The dark disk visible in the picture is plutonium. The glass rings help protect from neutron radiation.

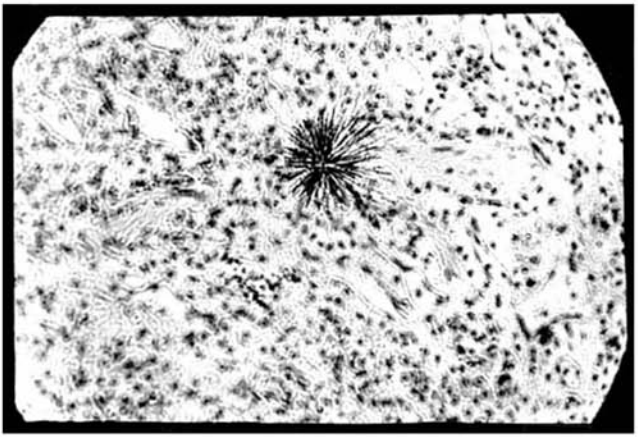
Photo courtesy of the Department of Energy.

Plutonium is created from uranium in nuclear reactors. With a half-life of 24,110 years, plutonium-239, the type used at Rocky Flats, remains radioactive for more than 250,000 years. Plutonium can be harmful only if inhaled, ingested, or otherwise taken into the body, as through an open wound or scrape.

As long as plutonium is lodged in the body – likely for the rest of one's life – it continually bombards surrounding cells with radiation. The

result can be cancer, immune defienciencies, birth defects, and other health problems.

Nobel Prize-winning chemist Glenn Seaborg, who discovered plutonium in 1941, called it "fiendishly toxic, even in small amounts." Physicist Jeremy Bernstein declared plutonium to be "the world's most dangerous element."



Particle of plutonium in the lung tissue of an Ape.

The black star in the middle of the picture shows tracks made by alpha rays emitted from a microscopic speck of plutonium in the lung tissue of an ape. Alpha rays do not travel very far, but once inside the body, they can have a major impact on the more than 10,000 cells within their range. These tracks were made over a 48-hour period. Plutonium has a half-life of 24,110 years. Lawrence Radiation Laboratory, Berkeley, California. September 20, 1982. Photo by Robert Del Tredici, Atomic Photographers Guild.

Edward Martell, a radiochemist at the National Center for Atmospheric Research, pointed out in 1970 that the radioactivity from plutonium dust particles at Rocky Flats is "millions of times more intense than that from naturally occurring radioactive dust particles (uranium) of the same size. Minute amounts . . . are sufficient to cause cancer."

Martell maintained that standards for permissible exposure to plutonium are at least 200 times too lenient.

These scientific assessments notwithstanding, official response to plutonium at Rocky Flats has so far been one of carelessness rather than caution. But it is not too late to let caution be our guide.

ROCKY FLATS TIMELINE

1952 The plant begins production of plutonium pits.

1957 A major plant fire spreads plutonium particles across the metro Denver area. There is no warning, no evacuation, and the public is not informed.

After extinguishing the Sept. 11, 1957 fire at the plant, exhausted firefighters stand next to a totally destroyed bank of filters meant to protect the public from particles of plutonium. This was the largest single release of plutonium in the plant's history. Smoke carried tiny particles across Denver and beyond.

Photo courtesy of the Department of Energy.

1967 Five thousand barrels of plutonium-laden waste have been stored outdoors for more than 11 years. This area, called the "903 Pad," becomes a principal source of contamination for nearby neighborhoods. Barrels are removed in 1967, and the area is paved over in 1969 in an attempt to control ongoing windblown contamination.

1969 On May 11, Mother's Day, a second major plutonium fire occurs, the most expensive industrial fire to date in U.S. history. After the fire, independent scientists find plutonium in off-site areas, including residential neighborhoods, at levels up to 400 times the amount of plutonium deposited from global fallout from the explosion of nuclear bombs. The Atomic Energy Commission (now Department of Energy), which has denied off-site contamination, now admits to it and reveals for the first time both the 1957 fire and the 903 area releases.

1974 Newly elected Governor Dick Lamm and U.S. Representative Tim Wirth create the Lamm-Wirth Task Force to provide information to the public. The group's report, issued in 1975, says Rocky Flats should never have been built in a major population center, and calls for it to be shut down and its work moved elsewhere.

1975 Rockwell International replaces Dow Chemical as managing contractor.

1977 *Local Hazard, Global Threat*, the first citizen's handbook on Rocky Flats, is published.

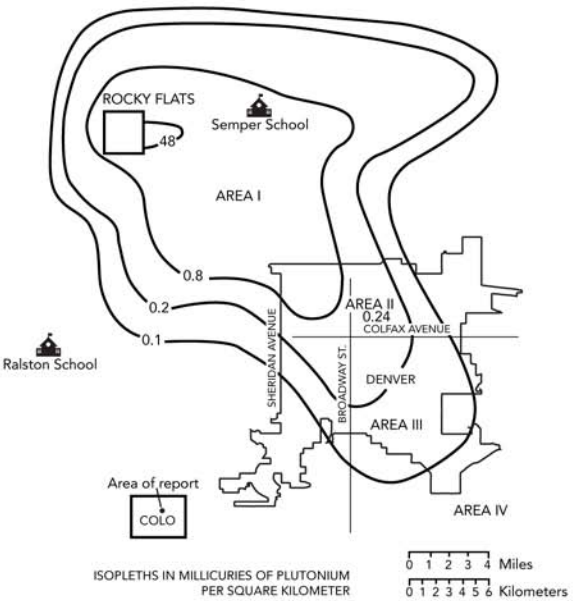
1978 Studies by Carl Johnson, MD, Director of the Jefferson County Health Department., show 6 to 16% higher rates of cancer in areas near Rocky Flats by comparison with other areas, as well as more leukemia, autoimmune disorders, and other ailments.

Large-scale protests begin at Rocky Flats and attract supporters from Colorado and around the country. Following a large legal rally on April 28, protesters block the railroad tracks leading into the plant and continue the occupation until January 1979. This becomes the longest sustained act of civil disobedience in U.S. history.

1979

Homebuyers who purchase federally-insured properties within 10 miles of Rocky Flats are required by the U.S. Department of Housing and Urban Development to sign the "Rocky Flats Advisory Notice," a public warning regarding potential contamination from Rocky Flats. When President Reagan takes office in 1981 the notice is abolished, although the plant continues to contaminate the environment onsite and beyond.

On April 28, approximately 12,000 protesters rally at Rocky Flats. 300 are arrested for civil disobedience.



In 1981, shortly after Dr. Johnson's dismissal, he published an article showing a correspondence between areas of plutonium contamination and cancer incidence in the same areas for 1969-71. This map indicates three off-site areas of increased plutonium contamination. Area I, nearest to Rocky Flats and the most contaminated, had 16% more cancer than the non-contaminated Area IV; Area II had 10% more cancer; Area III had 6% more. From Johnson, *Cancer Incidence in an Area Contaminated with Radionuclides Near a Nuclear Installation*, AMBIO, vol. 10, no. 4, October 1981

1981

Based on studies showing off-site contamination and subsequent health effects, Jefferson County Health Director Dr. Carl Johnson opposes housing development near Rocky Flats. He is forced to resign. The Colorado Supreme Court

later reverses his dismissal by Jefferson County, but Dr. Johnson has already moved away.

1982 *Dark Circle,* a film directed by Judy Irving, focuses on the connections between the nuclear weapons and the nuclear power industries, using Rocky Flats as its case study. The film receives wide audiences and numerous awards including the Grand Prize for documentary at the Sundance Film Festival and a national Emmy Award for "outstanding individual achievement in news and documentary."

1983 An estimated 17,000 protestors join hands around the 17-mile perimeter of Rocky Flats. In October, *Dark Circle*, the award-winning documentary about Rocky Flats and the Diablo Canyon nuclear power plant, is shown in Denver.

1989 The FBI and the EPA raid Rocky Flats to collect evidence of violation of federal environmental laws. A federal grand jury is impaneled and an investigation begins. In November, the Secretary of Energy announces production at Rocky Flats has been temporarily suspended; it never resumes. In September 1989, EPA adds Rocky Flats to the Superfund - National Priority List.

1990 EG&G assumes management of Rocky Flats. A class-action lawsuit, *Cook v. Rockwell*, is filed on behalf of more than 12,000 property owners alleging that Dow and Rockwell contaminated their land with plutonium.

In an effort to resume production, the Department of Energy seeks Congressional funding for a complete reconstruction of Building 371; Congress votes against it, making resumed production unlikely.

1992 Following the Special Federal Grand Jury investigation, the U.S. Attorney and Department of Justice bypass the Grand Jury and negotiate a settlement. Rockwell pleads guilty to less serious violations, including ten violations of the Clean Water Act and Federal hazardous waste laws and illegal storage of hazardous wastes. There are no indictments; the company pays a fine of $18.5 million, and receives immunity from further prosecution. Outraged Grand Jury members refuse to be dismissed and write their own report, calling Rocky Flats "an ongoing criminal enterprise," including ongoing offsite contamination. The judge, who had already sealed all documents in the case, also seals the Grand Jury report and begins an investigation of some of the jurors. A partial version of the jurors' report is leaked to the press. A Congressional Committee investigates the case and concludes the Department of Justice "bargained away the truth." A redacted version of the jurors' report was officially released in 1993. Today, the full report is posted on the internet.

1994 Energy Secretary Hazel O'Leary reveals that 1.191 metric tons (1.31 U.S. tons) of plutonium are lost from inventories at Rocky Flats.

1995 In the class-action suit *Cook v. Rockwell*, a U.S. district judge holds the Department of Energy in contempt of court for failure to release documentation regarding missing plutonium, health issues and more.

The Department of Energy estimates that it will take 70 years and $36 billion to clean up and close Rocky Flats. This will be revised in 2002.

The Future Site Use Working Group, funded by the Department of Energy, recommends that the site be cleaned to "average background level,"

which for plutonium is 0.04 picocuries per gram of soil (0.04 pCi/g), the quantity of plutonium from global fallout in local soil. (The curie is a measure of radioactivity.) This proposal is widely supported, but the Department of Energy rejects it, saying the site will be cleaned only to the "risk-based" level required by law.

1996

In an April 26 memo to all staff, DOE Rocky Flats manager Mark Silverman says, "Until further notice, no destruction will take place of any records."

Boston University epidemiologist Dr. Richard Clapp finds a disproportionate rate of lung and bone cancers in areas around Rocky Flats, and "a continuing excess of cancer and ongoing health effects" in local residents exposed to toxins released from Rocky Flats.

Cleanup levels for plutonium are contested when the Department of Energy, the Environmental Protection Agency, and the Colorado Department of Public Health and the Environment set the acceptable level of plutonium at Rocky Flats to 651 picocuries per gram of soil (very high compared to the background level of 0.04 pCi/g). This level is far higher than the cleanup standard at any other plutonium-contaminated site in the U.S. The public rejects this level but it is adopted as the legally binding cleanup level.

The Colorado Department of Public Health and the Environment issues a report stating that there is no evidence of adverse health effects directly attributable to Rocky Flats.

1999

Energy Secretary Bill Richardson apologizes to Paducah Gaseus Diffusion workers for the fact that the Department of Energy lied to them about illnesses from workplace exposures. EEOICPA became law in 2000.

1999 Legislation is passed to compensate nuclear weapons workers made ill by exposure on the job to various toxins and radionuclides, but missing records and extensive red tape make it hard for ill workers to prove their case.

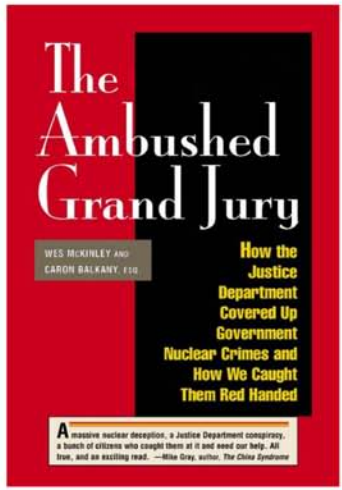
2000 An independent group funded by the Department of Energy recommends reducing the acceptable level of plutonium in the soil at Rocky Flats from 651 picocuries per gram of soil, established in 1996, to 35 picocuries per gram of soil—a reduction of 96%. The Department of Energy and regulators make no response.

2003 The Department of Energy revises its initial 1995 cleanup and closure estimate of $37 billion. Kaiser-Hill agrees to do a partial "cleanup" and closure of Rocky Flats for an estimated $7.3 billion.

The Department of Energy, Environmental Protection Agency, and Colorado Department of Public Health and Environment establish new legally binding "cleanup" standards for plutonium contamination at Rocky Flats. The top three feet of soil must be cleaned to 50 picocuries per gram of soil; soil from 3 to 6 feet must be cleaned to 1,000 to 7,000 pCi/g (dependent upon the size of the contaminated area); and soil at a depth greater than six feet has no limit on the quantity of plutonium that may remain. This standard is rejected by 86% of individuals and parties that commented; nonetheless these standards are formally adopted.

2004 Wes McKinley, who was foreman of the Rocky Flats Special Federal Grand Jury, and attorney Caron Balkany publish The Ambushed Grand Jury. This book details the 1989 FBI/EPA raid to find and collect evidence of violations of environmental regulations.

It also examines the Justice Department's intention to conceal rather than reveal criminal behavior, and why documents from the case remain sealed.



2005 Kaiser-Hill says the "cleanup" is complete, although levels of remaining onsite contamination are controversial. Part of the site is so contaminated it will remain closed to the public.

2006 The jury in *Cook v. Rockwell* finds Dow and Rockwell guilty and awards the plaintiffs $554 million. Eventually the judge issues a final award of $926 million. Dow denies any wrongdoing and immediately appeals the verdict.

2007 4,480 acres of the Rocky Flats site are transferred to the U.S. Fish & Wildlife Service to operate as a Wildlife Refuge. The Department of Energy retains 1,309 acres, essentially the former industrial area, and permanently closes it to the public. The Environmental Protection Agency removes all Rocky Flats land except this 1,309 acres from the Superfund list of most contaminated sites. The removed land is now deemed suitable for any use.

2010 The Tenth Circuit Court of Appeals overturns the jury's decision in the *Cook v. Rockwell* case, not due to inadequate evidence or the fact that the jury may have misunderstood the evidence, but because the judge failed to follow certain legal procedures.

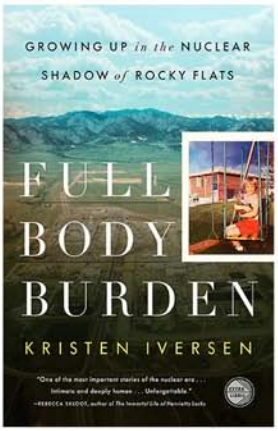
2012

The Supreme Court remands the *Cook v. Rockwell* case back to the original court

Despite strong opposition, Fish & Wildlife refused to do an Environmental Impact Statement on the proposal to transfer a 300-foot corridor three miles long along the eastern edge of the Rocky Flats site for the purpose of a new highway (the Jefferson Parkway). Several parties brought a lawsuit, which was decided in favor of FWS on the last day of the year. This immediately transferred the corridor to a private company that intends to build the road. Whether it will be built is uncertain because 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. Investors may not want to put their money into a road so strongly opposed. **http://www.jppha.org/**

2013

Local citizens initiate a petition opposing construction of the Jefferson Parkway, a privately financed toll highway proposed to be built along the eastern, most contaminated edge of the Rocky Flats site.



In 2012 Kristen Iversen, who grew up near Rocky Flats and later herself worked at the plant, publishes *Full Body Burden: Growing Up in the Nuclear Shadow of Rocky Flats*. This book of narrative nonfiction informs old and young about the history and hazards of Rocky Flats, past and present. Winner of numerous awards including the Colorado Book Award and the Reading the West Book Award in Nonfiction, and named Best Book about Justice by *The Atlantic*.

A local group concerned about public health and the environment expresses opposition to the large Candelas residential development along the southern edge of Rocky Flats. They establish a website entitled "Candelas Glows" (http://candelasglows.com) to engage and educate people about the danger of living so close to the contaminated site.

In September 2013, Rocky Flats and the surrounding area experience severe flooding, raising concerns about water and soil contamination being carried offsite into local neighborhoods. The Department of Energy cannot provide full information regarding the possible transport of plutonium into local neighborhoods and fields because extreme flooding rendered measuring equipment partially inoperable.

2014 The Colorado Fish and Wildlife Service, which manages the larger portion of the site, plans a "prescribed burn" at the Rocky Flats Wildlife Refuge in spring 2015. Burning grass will almost certainly release plutonium into the air where it can be readily inhaled—the worst way to be exposed to plutonium.

2015 In February 2015, a 701-acre "controlled burn" on the southwest corner of the Rocky Flats site was cancelled due to citizen opposition.

The USFWS smoke management permit for the Rocky Flats NWR expired on 12/31/2015

2016 The *Cook V. Rockwell* case was settled in May, with property owners recieving $375 million.

2016 & 2017

Fish and Wildlife now says the Wildlife Refuge will be opened to the public in 2018. In preparation it is conducting a series of four public meetings, beginning with two in 2016, one at Candelas and one in Boulder; and two in 2017, one in Broomfield and one in Arvada.

Closely related is the plan for the Rocky Mountain Greenway, a multi-use trail proposed to run from the Rocky Mountain Arsenal Wildlife Refuge northeast of Denver to Two Ponds NWR to Rocky Flats, then on to Rocky Mountain National Park. When originally presented to the public the Greenway trail would pass near Rocky Flats, not pass through the site. Once it was clear that Fish and Wildlife wanted the trail to traverse the Refuge controversy arose about contamination on the site. Local governments won a commitment for some sampling, and the Rocky Flats Technical Group was told it would be at the table when protocols for the sampling occur; that did not happen. Needless to say, the Technical Group wants a more elaborate permanent sampling plan. How this will be resolved is not now known. One possibility is that the Greenway will bypass Rocky Flats. **http://rockymtngreenway.org/**

Paralleling all the above is the ongoing campaign to keep the Rocky Flats Wildlife Refuge closed to the public. At the forefront of this effort is the Guardians' campaign to Keep Kids Off Rocky Flats. On March 14, 2017, The Boulder Valley School Board voted unanimously to ban school field trips for students in its district to the Rocky Flats National Wildlife Refuge. This major victory sets a precedent for other school boards to follow. **http://www.kkorf.org/**

2018

As of February 8th 2018, six local school districts have made a commitment to not allow field trips to Rocky Flats, including:

Boulder Valley School District
- Board resolution 3/14/17

St. Vrain Valley School District
- Commitment by the superintendent 5/10/17

Westminster Public Schools
- Commitment by the superintendent 9/29/17

Adams 14 School District
- Board resolution 10/10/17

Adams 12 School District
- Commitment by the superintendent 12/6/17

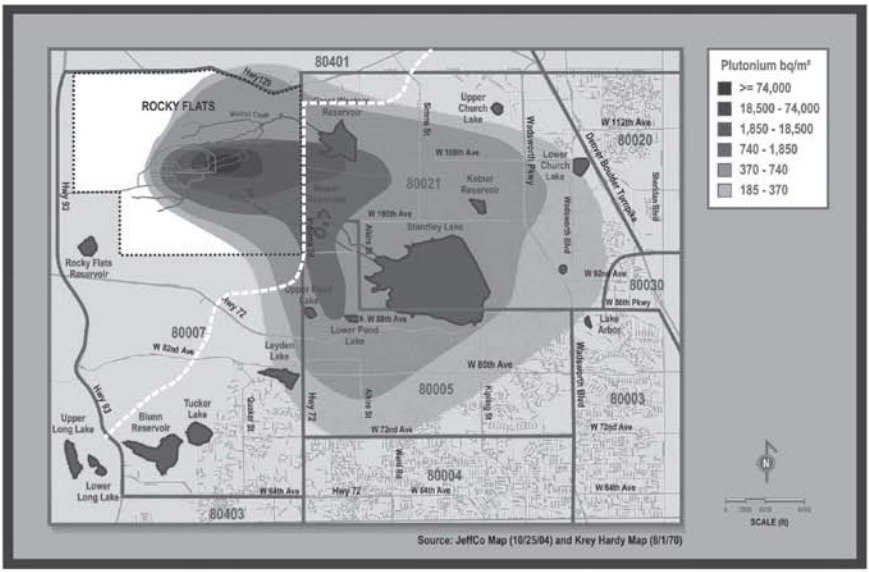
Jeffco Public Schools
- Commitment by the superintendent 2/8/18

C O N C L U S I O N

As in the past, many people who live in the proximity of Rocky Flats continue to suffer from health problems that may be due to exposure to toxins and radioactive materials released from the former nuclear weapons plant. Numerous veterinarians report higher rates of cancer and illnesses in animals as well. Because of the plutonium remaining in the environment and the fact that plutonium has a half-life of more than 24,110 years, Rocky Flats is a local hazard forever.

In accordance with the Nuclear Guardianship Ethic, we have the responsibility to current and future generations to educate and make responsible decisions about nuclear waste management. Each generation shall endeavor to preserve the foundations of life and well-being for those who come after.

Map of Plutonium Contamination, Krey Hardy Map



This map shows plutonium contamination on and off the Rocky Flats site. Darker areas of the map show higher concentrations. The dotted white line on this map is the route proposed for the Jefferson Parkway. Note that the proposed route traverses the most contaminated area along the eastern edge of the Rocky Flats site. The original version of this map was based on soil sampling done in 1970 by two scientists from the Atomic Energy Commission. Their map defined the class area for the *Cook V. Rockwell* class action lawsuit on behalf of people holding property in the off-site contaminated area. The *Cook V. Rockwell* case was settled in May of 2016, with property owners recieving $375 million.

Independent Sampling Study 2012

An independent sampling study published on January 20th 2012, was conducted along Indiana St, the road East of Rocky Flats. The study found that Plutonium exceeded reported background levels by two orders of magnitude at locations that match those noted in the Krey Hardy report. (P. W. Krey and E. P. Hardy, 1970, "Plutonium in Soil Around the Rocky Flats Plant") For additional information about the independent sampling study, please reference the technical resources page on **rockyflatsnuclearguardianship.org**

Rocky Flats Reportable Conditions 2013 – 2018

Contaminant	Media	Month(s) when concentrations resulted in reportable conditions	Statistical Base Intervals
Uranium	Surface Water	02/2018, 12/2016, 01/2016, 11/2013 – 10/2014, 12/2013	30-day average, 12-month rolling average, 30-day average
Trichloroethene (TCE)	Groundwater	05/2015 & 10/2015	Semi-annual sampling
Vinyl Chloride	Surface Water	03/2015 – 06/2015, 10/2013 – 02/2014	Quarterly sampling and triggered monthly subsequent sampling
Plutonium	Surface Water	05/2014 – 05/2015	12-month rolling average

Sampling for contaminants on the DOE Rocky Flats site is done at either a Point of Compliance (POC) at the site boundary, where DOE could be penalized if the sample exceeds the standard set in the Rocky Flats Legacy Management Agreement (RFLMA), or at an up-stream Point of Evaluation (POE), where there is no penalty but steps must be taken to reduce any exceedance before the contaminant reaches the site boundary. "Reportable Conditions" are occasions when results of sampling for a specific contaminant in surface water at a POE exceeds the agreed upon RFLMA standard, which is the legal limit for that particular contaminant on the site.

The above chart, prepared by Andrew Moscovich for Rocky Flats Nuclear Guardians, shows that there were exceedances for four listed contaminants in surface water or groundwater at specific times. The final column shows the specific sampling, whether it was a 30-day average, a 12-month rolling average, or something else. A 12-month rolling average, for instance, means samples were collected every month for 12 months, then averaged to produce a result. The result is an average of readings over a 12 month period, with some readings higher than the average, some lower. Readings that are far higher than the official standard are reduced on the chart by averaging them with lower readings. The final column in the figure above shows that there are/were several methods of sampling.

Andrew created the above table of exceedances by drawing on detailed reports listed on the DOE web according to date. To learn more on any particular item, select the date and look it up at **https://www.lm.doe.gov/Rocky_Flats/ContactRecords.aspx**

THE NUCLEAR GUARDIANSHIP ETHIC

The Nuclear Guardianship Ethic is proposed as an evolving expression of values to guide decision-making on the management of radioactive materials.

1. Each generation shall endeavor to preserve the foundations of life and well-being for those who come after. To produce and abandon substances that damage following generations is morally unacceptable.

2. Given the extreme toxicity and longevity of radioactive materials, their production must cease. The development of safe, renewable energy sources and non-violent means of conflict resolution is essential

All the Warheads in the U.S. Nuclear Arsenal
This field of ceramic nose-cones represents, in miniature, all the warheads in the U.S. nuclear arsenal at the height of the Cold War. Estimates have set that total at 25,000. Some warheads are being dismantled, but the long-term disposition of the plutonium cores inside these bombs has not yet been determined. *Amber Waves of Grain installation by Barbara Donachy, Boston Science Museum, Massachusetts. 15 February 1985.* Photo by Robert Del Tredici, Atomic Photographers Guild.

to the health and survival of life on Earth. Radioactive materials are not to be regarded as an economic or military resource.

3. We accept responsibility for the radioactive materials mined and produced for our alleged benefit.

4. Future generations have the right to know about their nuclear legacy and the dangers it brings.

5. Future generations have the right to protect themselves from these dangers. Therefore, it is our responsibility to pass on the information they will need, such as the nature and effects of radiation, and methods for monitoring and containing it. We acknowledge that deep burial of radioactive materials precludes these possibilities and risks widespread contamination.

Maids of Muslyumovo
Women from the Tartar/Bakshir village of Muslyumovo watch Western scientists measure radiation levels in the Techa River as it flows past their town. The Chelyabinsk reactor, 35 km. upstream, made plutonium for the first Soviet a-bombs. From 1949 until 1953 the plant dumped liquid high-level waste directly into the Techa. Its waters turned black; villagers downstream fell ill; many perished. Forty years later, women discover that the illnesses that befell their neighbors were related to radioactivity in their river. Soviet doctors, forbidden to say "radiation sickness," were ordered to tell victims they had contracted "vegetative syndrome." *Village of Muslyumovo, Chelyabinsk, Russia. 23 May 1992.* Photo: Robert Del Tredici, Atomic Photographers Guild.

6. Transport of radioactive materials, with its inevitable risks of accidents and spills, should be undertaken only when storage conditions at the site of production pose a greater hazard than transportation.

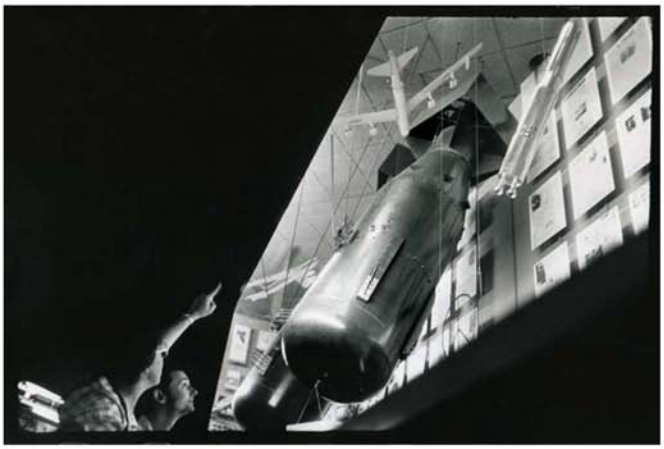
7. Research and development of technologies for the least hazardous long-term treatment and placement of nuclear materials should receive high priority in public attention and funding.

Spent Fuel in Dry Storage
These air-cooled silos hold irradiated fuel from the Gentilly 1 CANDU reactor, which operated for 180 days then got shut down without producing off-site electricity. Each silo is inspected by the IAEA to verify that no fuel has been removed for its plutonium to make bombs. Plutonium has a half-life of 24,110 years.
Used nuclear fuel must be cooled in pools for at least ten years, then put in dry storage for ten more years before it can be buried underground. The industry favors irretrievable burial of these wastes. Critics oppose this because the wastes will remain dangerous for millions of years. *Gentilly Nuclear Generating Station, near Trois Rivières, Québec. March 19, 1995.* Photo: Robert Del Tredici, Atomic Photographers Guild.

8. Education of the public about the character, source, and containment of radioactive materials is essential for the health of present and future generations. This education should promote understanding of the interconnectedness of all life forms and a grasp of the extraordinary time spans for which containment is required.

9. The formation of policies for managing radioactive materials requires full participation of the public. For this purpose, the public must have ready access to complete and comprehensible information.

10. The vigilance necessary for ongoing containment of radioactive materials requires a moral commitment. This commitment is within our capacity, and can be developed and sustained by drawing on the cultural and spiritual resources of our human heritage.



The Hiroshima Bomb
This is a duplicate outer casing for the first atomic bomb used on a living city. Ten and a half feet long, weighing 9,700 pounds, nicknamed "Little Boy," this uranium-fueled atomic bomb completely destroyed the city of Hiroshima. *Smithsonian Air and Space Museum exhibit: "The Social Impact of Flight," Washington D.C. 25 June 1981.* Photo: Robert Del Tredici, Atomic Photographers Guild.

A CALL TO ACTION

Plutonium is a serious hazard that endangers human life and the environment for many generations. People in Colorado continue to report health problems that may be due to exposure to toxins and radioactive materials released from Rocky Flats. Because of the plutonium remaining in the environment, Rocky Flats is a local hazard forever.

The surface soil at Rocky Flats should be cleaner than what is now required, which provides only a modicum of protection for a wildlife refuge worker and disregards the risks of others who may live or work near the site. The subsurface environment (below six feet) should be cleaned to the fullest extent possible because of the enormous uncertainties regarding both the condition and use of the site long after fences fall and memory fades, and the risk of contaminants in the air, water, or soil carrying into local neighborhoods and beyond.

Lacking this better cleanup, the US Fish and Wildlife Service should declare the Rocky Flats Wildlife Refuge off limits to the public until at least the year 2215, during which time the DOE's Legacy Management Office should implement a program of ongoing research to reduce contamination and help allay the more negative aspects of the Rocky Flats "cleanup."

There are times when humans must make a choice, and no alternative that presents itself will result in unmitigated good. In such a situation, from the perspective of democratic process, the decision needs to be made by the widest range possible of those likely to be affected by the outcome, with special weight given to the most vulnerable. Those who participate in the decision must also act for any who lack a voice because they are removed in time or space or because they belong to mute nature.

To take action and become involved, the following organizations and projects can use your support:

Rocky Flats Nuclear Guardianship

Nuclear Guardianship combines art, science, and remembrance to address the human-caused problem of nuclear contamination with wisdom and creativity. It is guided by scientific curiosity and openness, and establishes a model for perpetual ecological stewardship and environmental democracy. Nuclear Guardianship requires a powerful cultural shift away from secrecy and denial of our nuclear legacy towards an ethic of ecological responsibility. The Rocky Flats Nuclear Guardianship Project works diligently to prevent Rocky Flats from being opened for public recreation. Much of the former nuclear weapons site has already been renamed the Rocky Flats National Wildlife Refuge, and maps with hiking and biking trails have been designed. Join us in working to keep the site closed to recreation and development and open for on-going monitoring and further environmental remediation.

www.rockyflatsnuclearguardianship.org

Candelas Glows

Candelas, one of Colorado's largest new housing developments, is being built adjacent to the site of the former Rocky Flats nuclear weapons plant, 16 miles northeast of Denver. The Rocky Flats site is contaminated with plutonium and, according to the Department of Labor, over 1,000 other carcinogenic chemicals. Despite a well-documented history of accidents, plutonium fires, and spills during production years and the inadequacy of the subsequent Superfund "cleanup," much of the Rocky Flats site is now labeled a "Wildlife Refuge," and development is being encouraged along its borders. Candelas Glows, a group of concerned citizens, draws attention to the true nature of Rocky Flats. We believe Rocky Flats needs to be remembered for what it was, with plant workers recognized as the atomic veterans that they are. The Wildlife Refuge designation needs to be immediately stripped and the area must not be opened to the public. We believe the site should be memorialized, calling on artists to help us build permanent structures that speak to the site's past. Optimally, an institution should be created to oversee Rocky Flats and monitor the site focusing on remediation and monitoring — especially in the case of extreme weather, such as the recent floods which caused the migration of plutonium off site. Our primary focus is to stop the development of the area around Rocky Flats.

http://candelasglows.com

Westminster Hills Dog Park and Open Space

Just east of the former Rocky Flats Plant site, and directly downwind and downstream from the radioactive contamination that remains there, is the Westminster Hills Dog Park and Open Space. This beautiful area is very popular among residents and dog owners, though it is unfortunately the likely cause of a spike in cancers in the local dog population. Veterinarians in the Arvada and Westminster area report alarmingly high incidences of cancers in dogs. Bill Johnson, a retired veterinarian who owned animal hospitals in California and Colorado, was quoted in the *Denver Post*: "My biggest concern when I came back to Arvada to practice was seeing all these dogs with cancer. I saw more in one week than I would in a few months in California."

Dogs that frequent the park are known to get bone cancers primarily in their front legs as well as cancerous growths between the pads of their paws. Sadly, there are no signs warning visitors of the potential hazards, so family pets continue to recreate there, bringing any number of known carcinogens back with them into their homes.

Community organizer and activist, Alesya Casse, is a strong advocate for signage that would warn would-be visitors to the park of the contamination left in the environment there, and continues to advocate for responsible nuclear waste management programs for communities worldwide. For more information please visit:

www.RockyFlatsGlows.com

Rocky Flats Downwinders

In 2015, Tiffany and Nick Hansen founded Rocky Flats Downwinders ("RFD"), a community organization created to educate, inform and advocate for those people negatively impacted by living downwind from the former Rocky Flats Nuclear Weapons Plant. RFD seeks 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 Downwinders. A principal goal of RFD is to implement a comprehensive medical monitoring program to provide former residents with preventative testing for early treatment and care of radiation and other chemical induced illnesses and diseases. To address long standing questions and concerns in the Arvada, Westminster, Broomfield and surrounding communities regarding high rates of illnesses, RFD solicited help from Metropolitan State University of Denver ("MSU Denver") to conduct an ongoing community health survey to determine if there are identifiable adverse health effects experienced by residents that have lived downwind from the former Rocky Flats Nuclear Weapons Plant.

Rocky Flats Downwinders

The health survey, approved by MSU Denver's Internal Review Board, collects and maintains confidential health data on those people living in the areas circumscribed by the boundaries of Highway 7/168th/Arapahoe Avenue on the north, I-25 on the east, Colfax on the south, and Highway 93 on the west between 1952 to date. Preliminary findings of the health survey have identified high instances of thyroid cancer as well as very rare cancers. The findings have been widely reported in the media and have generated much controversy. Based upon the findings, RFD continues to lobby the Colorado Department of Public Health and Environment and Colorado's elected representatives to fund a controlled study to further investigate the adverse health effects which have been detected. You can find out more information regarding RFD and take the community health survey at:

www.rockyflatsdownwinders.com

Inquiries regarding RFD can be directed to:

Tiffany Hansen
tiffany@rockyflatsdownwinders.com

Environmental Information Network

The founders of Environmental Information Network (EIN), Inc., Susan Hurst and Paula Elofson-Gardine have been involved in the Rocky Flats issues since 1985. They came from Networking Colorado and Concerned Health Technicians for a Cleaner Colorado before combining forces to found EIN. The focus for EIN has been radioactive, chemical contamination, and health effects to workers and the community from the Rocky Flats plant and surrounding environs.

EPA TAG: Susan typed the grant for the EPA Technical Assistance Grant (TAG) to help create the TAG organization called the Rocky Flats Cleanup Commission (RFCC), that brought people from other organizations together to review cleanup plans and have input on the process. In 1986, Susan was attending "Exchange of Information" meetings. The agencies involved: USEPA, USDOE, Rocky Flats contractors, Cities of Arvada, Boulder, Broomfield, and Westminster performed independent testing of releases from the Rocky Flat plant, and exchanged the information at these monthly meetings. Because of these meetings, it became clear that our water supplies had been contaminated with Plutonium from Rocky Flats. Alarmed, Susan took the water reports to the Cities of Arvada, Westminster, and U.S. Representative David Skaggs, which resulted in her being threatened with public censure and jail time for revealing these facts. She was clandestinely given FBI Agent Jon Lipsky's card with the suggestion she take the information to him.

Environmental Information Network

These water reports lead to Clean Water Act violations that Rockwell plead guilty to in Federal Court. The effort to bring information to light and educate the public about these hazards has been ongoing. Paula has done presentations on this information at all levels of education from K-12 to University classes. In 2006, 135 linear feet of Environmental Information Network (EIN) research documents were donated to the University of Colorado at Boulder Atomic West Collection at Norlin Library. In 2018, many of the most damning documents are in process of being scanned and made available online so that others can benefit from this information.

In order to understand what is going on now, it is vital to understand the past history of this facility and surrounding environs. We remain committed to the long haul of research and dissemination of information to the public.

pjelofson@gmail.com
susandhurst@aol.com

Cold War Horse

Artist Jeff Gipe, who grew up in Arvada and now lives in Brooklyn, creates what is sometimes called "renegade art." A striking example is his Cold War Horse, located near the Rocky Flats site on the south side of Hwy. 72 between Hwy. 93 and Indiana St. – closest to Indiana St., just south of the Candelas development. The Cold War Horse was created to acknowledge the history of Rocky Flats Nuclear Weapons Plant, its workers, and the surrounding community. It stands as a reminder for a history that we must not forget. A full-sized animal, it has to be seen to be believed. It wears a red hazmat suit and a respirator mask. The horse's first public appearance was at the Arvada Center for the Arts on the 25th anniversary of the FBI raid of Rocky Flats, June 6-8, 2014. In September 2015, the horse was taken to its present location. Trouble came quickly. Someone wrapped a cable around it, brought it down and banged on it with a sledge hammer. The horse was badly wounded. Not to be defeated, Jeff rebuilt the memorial, put it on a pedestal inside a fence with cameras that could record anyone who attacked the horse again. When he finished, he held a celebratory event with speakers and an attendance of about 200. Jeff's father worked at Rocky Flats for 20 years and now suffers from an ailment perhaps due to harmful exposure on the job.

http://coldwarhorse.com/

Rocky Flats Right To Know

Started by two grandmothers who live in Arvada, Rocky Flats Right to Know is an organization devoted to Keeping Kids off Rocky Flats and to advocate for permanent signage around the former nuclear weapons plant.

Although there was a cleanup of Rocky Flats completed in 2006, the majority of this cleanup occurred where the nuclear weapons plant manufactured plutonium triggers. This remains an active Nuclear Superfund Site. The buffer zone for the plant, now known as Rocky Flats National Wildlife Refuge, was transferred to US Fish and Wildlife to manage. Residual contaminants remain and children are especially susceptible to these contaminants.

https://www.rockyflatsrighttoknow.org/

Rocky Flats Technical Group

In early 2015 Dr. Harvey Nichols, Emeritus Professor of Biology, gathered together a group of mostly technical specialists who had long experience of the environmental and health problems of the former nuclear facility at Rocky Flats. Several Rocky Flats scientific 'veterans' who in the 1970s and 1980s had criticized the plant operation joined now with younger critics, all with professional status suited to warning politicians and the public about the health risks of recreation at the Rocky Flats National Wildlife Refuge. Their professional fields include meteorology, chemistry (including environmental plutonium specialty), soil science, aerobiology, hydro-geology, water quality, medicine, NEPA environmental law, environmental forensic detective work for the FBI, business and political representation, archival historical expertise etc. In total their direct combined knowledge of the site exceeds 300 years. The fresh focus of this group, following the decommissioning of the plant, is the federal plan to open the Refuge for public recreation, and also the federal plan to burn large areas of the Refuge at frequent intervals to control invasive weeds. This latter would inevitably release hazardous plutonium particles into the airstream of the Denver-Boulder region from a Refuge which is officially admitted to be still contaminated with plutonium. As a result of the Technical Group's work, a 701 acre burn planned at the Refuge for spring 2015 was canceled, and the Air Quality Control Commission told Fish & Wildlife that it must apply anew for any future permit and that a public hearing would occur. For additional information contact Dr. Harvey Nichols at:

Harvey.Nichols@colorado.edu

The Ambushed Grand Jury

A non-fiction and non-profit 2004 book by Wes McKinley and Caron Balkany, Esquire, details the results of a Citizens' investigation: How the Justice Department Covered Up Government Nuclear Crimes and How We Caught Them Red Handed. Later, Wes McKinley was elected to the Colorado State House and pursued 'Informed Consent' legislation to inform visitors to the Rocky Flats Refuge. The attempted legislation was opposed by government officials. Extensive source documents are available at:

http://rockyflatsambushedgrandjury.com/

You Reading This Be Ready

William Stafford

Starting here, what do you want to remember?
How sunlight creeps along a shining floor?
What scent of old wood hovers, what softened
sound from outside fills the air?

Will you ever bring a better gift for the world
than the breathing respect that you carry
wherever you go right now? Are you waiting
for time to show you some better thoughts?

When you turn around, starting here, lift this
new glimpse that you found; carry into evening
all that you want from this day. This interval you spent
reading or hearing this, keep it for life.

What can anyone give you greater than now,
starting here, right in this room, when you turn around?

On October 15, 1983, an estimated 17,000 people joined hands to encircle Rocky Flats and call for nuclear disarmament. Photo by Sri Jodha Singh Kalsa.

ACKNOWLEDGMENTS

Many thanks to Christopher Hormel, Kristen Iversen, Judith Mohling, LeRoy Moore, and Kathleen Sullivan for supporting this publication.

Special thanks to Joanna Macy, whose brilliance birthed the Nuclear Guardianship concept with Francis Macy and others, in the Chernobyl Time Lab, Berkeley, California, 1988.

May future beings live in peace, and be empowered to take responsible care of radioactive materials.

Design by Yuko Tonohira http://sansnuclear.net

Edited by LeRoy Moore and Jon Lipsky

ROCKY FLATS NUCLEAR GUARDIANSHIP