

The Rocky Flats National Wildlife Refuge: A Constructive Approach

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Takeaway messages for nearby homeowners

[from a Candelas homeowner: wooddmarv@gmail.com]

If you live in Candelas or Whisper Creek or Five Parks, you have already made your peace with the legacy of the Rocky Flats plant. Yet you will encounter plenty of misinformation by innuendo about the advisability of developing the areas around Rocky Flats, opening the Rocky Flats National Wildlife Refuge, and about the risks associated with building Jefferson Parkway. Any group attempting to ‘persuade’ you with 20-year old information and now-discredited ideas (e.g., “hot particles”) is doing so from naivete or ignorance, not based on recent DATA. Look for phrases such as “could be”, “might be”, gross overstatements about the toxicity of plutonium, and complaints about missing documentation about such and such with remarks about the motives for why this or that information was hidden. Most professional journals which publish research will not tolerate “serial publication” of the same article, but you can see the same old information rehashed every couple of months by Dr. LeRoy Moore.

We owe Dr. Moore a large debt for his focus on the gross mismanagement and malfeasance that went on at Rocky Flats until the late 1980s. But these disgraceful problems had a beginning, a middle, and an end. The Rocky Mountain Peace & Justice Center and Rocky Flats Nuclear Guardianship (both based in Boulder and creations of LeRoy Moore) lack the tools to carry the discussion forward. All they will ever be able to do is to say, in effect: there COULD be a problem; this MIGHT happen at some point in the next 48,000 years. The net effect is to confuse some people, muddying the waters about the actual risks of Rocky Flats, and to indefinitely block constructive use of the land available until every possible issue is clarified.

The large number of possible reasons they “cite” for opposing opening the wildlife reserve reminds me of the book *A Hundred Authors Against Einstein* (published in 1931), criticizing relativity. In response to the book, Albert Einstein noted, “*If I were wrong, one would be enough.*” My belief is that the HISTORY (who failed to report what, which documents are missing and why, etc) are of interest mostly to those who wish to “set the record straight” but are not directly relevant to proposed uses as a wildlife preserve. My view is that a only a handful of very concrete questions (that can be answered NOW or have already been satisfactorily answered) are the ones most neighbors of the preserve would want answered. In large part the actual data needed (based on monitoring and decent risk estimates) is already present and is quantitative, not qualitative.

These fundamental questions are NOT TECHNICAL.

They ARE:

Can we measure radiation accurately?

YES, for at least 60 years

Are the health risks of plutonium understood?

Reasonably well, for at least 30 years

Is the area being MONITORED for problems?

Yes, regularly: water, soil, air

Was the cleanup effective?

State, federal monitoring indicates yes

Is the wildlife preserve area safe for use by the public?

The cleanup level was targeted to assure the safety of a refuge worker, who spends **full days** in the preserve. Data I know of supports its safety.

Do you trust the federal government and state agencies to set standards?

You should make your OWN conclusions. (Do you drink municipal water? Why?) The DOE and EPA of 2016 undergo vastly more scrutiny now than it they in the mid-1980s

This is a quick introduction to a complex subject. You should prowl around the Web if you wish to educate yourself further.

Useful resources

The history of Rocky Flats is available from many sources, and is not pretty. A good book for HISTORY (with some statements misleading and unconfirmed statements) is *Full Body Burden: Growing Up in the Nuclear Shadow of Rocky Flats* (Kristen Iversen, 2013).

<http://www.rockyflatssc.org> The Rocky Flats Stewardship Council;
http://www.rockyflatssc.org/public_comment.html Commentary (large range of “signal to noise”)

Attend meetings of the Rocky Flats Stewardship Council if you can. Otherwise we risk public input and discourse being dominated by the Rocky Mountain Peace & Justice Center [based in Boulder] and Rocky Flats Nuclear Guardianship [based in Boulder].

Good sources of information (some cited because they have good links themselves)

<http://www.sandrarnstein.com/assessing-risks-living-near-rocky-flats/>
(some links stale)

<https://arvadacenter.org/on-stage/rocky-flats-then-and-now-2014> (mostly an FYI)

<https://www.colorado.gov/pacific/cdphe/rocky-flats> Good links to other information sources, state reports

<https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0800360> Environmental Protection Agency site related to cleanup

Radiation

<http://hps.org/hpspublications/radiationfactsheets.html> Health Physics Society information
<http://hps.org/publicinformation/>

Please contact David Wood wooddmarv@gmail.com if you'd like to be added to an (email) list devoted to keeping abreast of ongoing issues at the Rocky Flats National Wildlife Refuge, an important amenity for Candelas/Whisper Creek/5 Parks and other developments which border on Rocky Flats. This list is targeted at people ACTUALLY living near Rocky Flats, with an interest in seeing the wildlife refuge issues resolved in a constructive and reasonable way.

Points made in *Why Refuge Should Remain Closed to the Public*, by LeRoy Moore, dated April 28, 2015. <http://www.rockyflatsnuclearguardianship.org> and Boulder Daily Camera, posted 9/1/2015

(Preliminary—for 4 April Stewardship Council meeting, David Wood)

1. The Rocky Flats Superfund cleanup was designed to protect a wildlife refuge worker. But plutonium will far outlive the refuge. The greatest harm will be to future generations.

Why? Will they spend more time in the refuge than a WORKER there? How exactly will future generations be harmed? What is the likelihood?

2. Genetic effects of plutonium on wildlife are poorly understood. There have been no genetic studies of wildlife at Rocky Flats.

Genetic effects of plutonium on HUMANS—much less wildlife, or of living near power lines, or near cell-phone towers, are ALSO poorly understood. Nor have there been studies on genetic effects of radon—a vastly larger radiation risk--on human beings. Does this mean we should stop living in urban environments or on soils that emit radon? Decisions are based on *best available data and reasonable mitigation* not ideal situations with all conceivably relevant information!

3. The FBI raided Rocky Flats in 1989 to collect evidence of environmental law-breaking at the site. The documents were sealed. EPA and CDPHE were given the opportunity to review the evidence during the cleanup, but they declined. In the raid EPA took environmental samples that have never been revealed

No one disputes gross misfeasance by Rocky Flats operators at that time. Do you feel current oversight is inadequate? Do you feel monitoring agencies are fabricating or hiding data? What is evidence of this? Are you implying MONITORING going on NOW should be superceded by data taken 25 years ago? Or is the issue a large, ongoing conspiracy.

Although children are especially vulnerable to radiation, FWS expects them at the refuge

Children are especially vulnerable to LEAD poisoning. The Fish & Wildlife Service restricts use of lead fishing tackle in streams and lakes. Does this mean there should be no children permitted in parks with lakes and streams?

Plutonium-239, with a half-life of 24,110 years, is present in the environment at Rocky Flats in the form of particles too small to see

It is also present all over the world, as a consequence of nuclear testing in the 50s-70s. The real question is: does it pose a threat to users of the facility?

- The radiation from plutonium cannot penetrate skin, but if plutonium is inhaled or otherwise internalized it lodges in the body and constantly irradiates nearby tissue, endangering one's health.

No quibble here.

- Columbia University researchers found that a single particle of plutonium taken into the body induces genetic mutations that may produce cancer or other ailments.

The “hot particle” theory—see MUCH more on the blog pages of LeRoy Moore has effectively been discredited. J. Radiology Protection 27 A97 (2007): “Our understanding of the radiobiological effects of ‘hot particles’, and our ability to measure relevant doses from them, has increased dramatically over the past 25 years... It is possible to predict significant health effects, but only by making assumptions which have a low probability, such as exceptionally long residence/transit times [25]. This low probability must be compounded with the already very low probability of encountering a particle (estimated as $<10^{-6} \text{ y}^{-1}$ for Sandside beach [28]). The challenge for regulators remains, as in other situations of environmental contamination, to determine the extent to which remediation is required in the light of potential health effects with a low probability of occurrence.”

Those responsible for the cleanup assumed plutonium left in soil would remain in place, despite Dr. Iggy Litaor's discovery in 1995 that plutonium migrates during rain events and Dr. Shawn Smallwood's finding in 1996 that burrowing animals bring plutonium to the surface, where it can be redistributed by the wind common at Rocky Flats.

Measurements in the last 3 years indicate that the plutonium detected in the late 80s is still pretty much where it WAS. See http://www.dailycamera.com/boulder-county-news/ci_19995436 It is not complicated to estimate the VOLUME of redistributed soil due to burrowing. Its additional contribution to plutonium on the surface is proportional to the fractional volume of (say) the top 3 feet of contaminated soil occupied by burrows—mighty small

In the face of all this uncertainty, biology professor Harvey Nichols and former county commissioner Paul Danish generated a very sensible proposal. Congress should enact legislation requiring that all DOE nuclear weapons sites that undergo Superfund cleanup remain closed to the public for at least 250 years after completion of the cleanup.

A number of contaminated sites in Europe and Japan are being monitored, as are the health effects on workers in nuclear facilities in the US, England, and the former Soviet Union have been repeatedly examined and are the subject of ongoing studies.

For example:

Health Phys. 1997 Oct;73(4):611-9.: "Twenty-six white male workers who did the original plutonium research and development work at Los Alamos have been examined periodically over the past 50 y to identify possible health effects from internal plutonium depositions. Their effective doses range from 0.1 to 7.2 Sv with a median value of 1.25 Sv. As of the end of 1994, 7 individuals have died compared with an expected 16 deaths based on mortality rates of U.S. white males in the general population. The standardized mortality ratio (SMR) is 0.43. When compared with 876 unexposed Los Alamos workers of the same period, the plutonium worker's mortality rate was also not elevated (SMR = 0.77). The 19 living persons have diseases and physical changes characteristic of a male population with a median age of 72 y (range = 69 to 86 y). Eight of the twenty-six workers have been diagnosed as having one or more cancers, which is within the expected range. The underlying cause of death in three of the seven deceased persons was from cancer, namely cancer of prostate, lung, and bone. Mortality from all cancers was not statistically elevated. The effective doses from plutonium to these individuals are compared with current radiation protection guidelines.

It would introduce into the nuclear realm the precautionary principle that where uncertainty regarding harm to public health and environmental integrity exists caution should prevail over carelessness. By the time a site has been closed for two-and-a-half centuries, whether visiting it poses a danger or not should be known. Any questionable site could be kept closed permanently.

Why not put up a warning sign and let VISITORS make the decision?