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Statement of LeRoy Moore on Setting Cleanup Standards to Protect Future Generations

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To: News Media

From: LeRoy Moore, Ph.D.

Re: Radionuclide Soil Action Levels for Rocky Flats

My name is LeRoy Moore. I am a consultant with the Rocky Mountain Peace and Justice Center. We at the Center have had a focus on activities at Rocky Flats since the Center was created in 1983. I personally have worked on health and environmental aspects of the Rocky Flats issue since 1979. I am the primary author of the Citizen's Guide to Rocky Flats published in 1992. I was a founding member of the Rocky Flats Citizens Advisory Board, and I have served on several bodies created to advise the Department of Energy and the regulators regarding Rocky Flats.

From 1952 until 1989 the Rocky Flats plant produced the fissionable plutonium "pit" for every nuclear weapon in the U.S. arsenal. Nearly 40 years of bomb production punctuated by several major accidents and many minor ones left the site badly contaminated. Production officially ended in 1992, and efforts are now underway to clean the site in preparation for closure in 2006. The 6,500 acre Rocky Flats site is located 16 miles northwest of central Denver in an area undergoing rapid urban development.

Plutonium, the contaminant of principal concern at Rocky Flats, is particularly dangerous for two reasons. First, with a half-life of more than 24,000 years, it remains radioactive for a quarter-of-a-million years. Second, while the alpha radiation plutonium emits cannot penetrate skin, tiny particles taken into the body by breathing, swallowing, or through a wound can cause cancer, genetic defects, or harm to the immune system. Hence, plutonium left in the environment constitutes an essentially permanent danger.

To deal with the plutonium in the soil at Rocky Flats the Department of Energy (DOE) and the regulators set radionuclide soil action levels (RSALs) for the site. An RSAL stipulates that when the amount of radioactive material in the soil exceeds a specified level, action must be taken to remove the material or to contain it. Amounts below the RSAL require no remedial action and can be left in place. The RSAL thus indicates how much radioactive material may remain in the soil. No single decision regarding Rocky Flats cleanup is likely to have greater long-term effect than the one establishing how much plutonium can remain in soil.

In October 1996 the government agencies established an RSAL for plutonium at Rocky Flats of 651 picocuries per gram of soil (pCi/g), a level much higher than the action level adopted at any other plutonium-contaminated site anywhere. The Rocky Flats RSALs had been developed with scant input from the affected public, and they were strongly opposed during the extensive public participation process. They were nevertheless adopted essentially as originally proposed. Public opposition continued. The DOE eventually agreed to fund an independent scientific review of the RSALs. DOE appropriated half-a-million dollars for the study.

A broadly representative Soil Action level Oversight Panel was created. I served on the three person Steering Committee of this Panel. In competitive bidding, the Panel hired Risk Assessment Corporation (RAC) to do a peer-reviewed study. RAC is a prestigious team of scientists well-known to the DOE and the Colorado State Government for their work involving detailed studies of radiation and risk at numerous sites, including Rocky Flats. All meetings of the Oversight Panel were facilitated by a professional facilitator. The Panel kept abreast of RAC's work at every step along the way. The government agencies were invited to all meetings, received all reports in draft form, were invited to comment as they saw fit. The interaction between RAC and the Oversight Panel created an innovative and positive model for public participation in scientific work. The project was completed on time and on budget after 15 months. RAC suggested a number it deemed appropriate and the Panel recommended by consensus that the RSAL for plutonium be reduced about 95% from 651 pCi/g to 35 pCi/g.

The agencies responsible for Rocky Flats cleanup never formally responded to this recommendation but conducted their own review instead. After a year-and-a-half of working with some of the affected public, they will soon propose new RSALs.

Because Rocky Flats is one of the most dangerously contaminated sites in the country, Rocky Flats is a Superfund site. One provision of Superfund law is that the site be cleaned to correspond with reasonably anticipated future use. Since Rocky Flats is expected to be designated a National Wildlife Refuge, the government agencies assume this as the future use, and they intend on this basis to propose RSALs designed to protect a wildlife refuge worker. Such a person will be on the site 40 hours a week 50 weeks a year, or 2,000 hours per year for maybe 14 years, perhaps half of this time outdoors.

The wildlife refuge worker scenario may be a reasonable choice for the short term, but for the long term it is not reasonable because not realistic. The one thing that can be said with certainty about the future use of Rocky Flats is that the site will cease being a wildlife refuge long before plutonium ceases being dangerous. The whole of recorded human history is brief by comparison to the 24,000-year half-life of plutonium. Plutonium left in the environment will pose a danger long after fences fall and memories fail.

Since we cannot predict what will happen at Rocky Flats in the future, we should assume that eventually people will live on the site. The most protective residential scenario is that of a subsistence farmer who occupies the site around the clock for a lifetime, using local water and eating homegrown food, spending as much as 8,400 hours per year on the site, maybe a third of this time outdoors, for perhaps 70 years. The IEER report explains the scientific basis for this scenario. We at the Rocky Mountain Peace and Justice Center want the government agencies to use this scenario to calculate the RSALs for Rocky Flats, because we know that, if the subsistence farmer is protected, then all other site users, including the refuge worker, will be even better protected.

Most stakeholders want Rocky Flats as open space, with no urban development on the site. Making Rocky Flats a wildlife refuge has the virtue of preserving open space and preventing development, but it also provides a rationale for cutting costs by cleaning the site only to the level required to protect a wildlife refuge worker. Leaving plutonium in the environment as the price for open space is a pact with the devil. While a wildlife refuge designation can prevent onsite development for the near term, cleaning the site only to the refuge worker level provides poor protection for unsuspecting future residents of the site.

We have no control over what will happen at Rocky Flats in the future. We have control only over what we can do today. If we cannot now remove all contaminants from the Rocky Flats environment, we nevertheless have a responsibility to clean the site as thoroughly as possible, for the sake of future generations. This responsibility is not diminished by the specific designation we may give the site today.

Cleaning Rocky Flats only to the level of a wildlife refuge leaves a more contaminated site to the wildlife a refuge supposedly would protect. Not only will wildlife be less protected, but also they will become carriers of plutonium left in the soil to other locations, near and far.

Finally, we should be careful about the precedent we are setting. Rocky Flats is a flagship site in DOE's effort to clean contaminated sites. Cleaning to the level of a wildlife refuge sets the bad precedent of increasing risk by cutting cost. We have the opportunity, and indeed the responsibility, to set a good precedent for other sites by establishing the best possible protection at Rocky Flats. This is why we advocate setting the RSALs to protect a hypothetical future subsistence farmer residing on the site.