September 10, 2002

Rocky Flats NWR
Comprehensive Conservation Plan
Attn: Laurie Shannon, Planning Team Leader
U.S. Fish & Wildlife Service, Building 121
Commerce City, CO 80022
Ph: 303.289.0980    Fax: 289.0579
Email: lshannon@rma.army.mil

Dear Sirs and Madams:

The following are our comments and attachments for the official record regarding the NEPA EIS Public Scoping for the Rocky Flats National Wildlife Refuge.

A Wildlife Refuge, as most public understands it, is a pristine environment with healthy animals, trails, and educational opportunities. The designation should be “Restricted Access Nuclear Reserve”. One of the reasons the wildlife refuge designation was sought, was because of local municipalities that repeatedly indicated interest in acquiring and developing at this former Rocky Flats Nuclear Weapons Facility. **Declaring Rocky Flats a National Wildlife Refuge is a tactic designed to short circuit inappropriate acquisition or development at this site.** This designation does not go far enough. There must be protections in place because of remaining residual contamination that continue to migrate and be a health risk of exposure to workers and public.

The Rocky Flats site has been a CERCLA and RCRA site for over 15 years, starting with being listed on the National Priority List in 1989, with over 178 individual hazardous waste sites identified. These sites were re-grouped to become 16 Operable Units. They were again re-grouped to be 2 – onsite and offsite. The offsite was subjected to an “administrative cleanup”, by delisting it as minor contamination areas. Accelerated cleanup has become the preferred method for only the worst and highest levels of contamination in the RF Industrial Area. This is also referred to as “down and dirty cleanup”, leaving much of the existing contamination in place. **There are areas at Rocky Flats that will potentially and in all probability NOT be cleaned up. This includes the underground building-to-building plutonium process and transfer lines, the landfills, areas with underground contamination that is subject to recharge with the ground water and aquifer due to the very high ground water table (in years other than drought), lateral seepage and leachate that is both chemical and radiological in nature.** The synergistic effect of these combined contaminants is not known.

Because of the approximate 50 years of discharges to air, water, soil, hundreds of accidents and fires, there is a broad variety of chemical pollutants and radiological contaminants (see suggested liability disclaimer) present in most media, in varying degrees. If a National Wildlife Refuge is to be the designated status, it should be amended to be more accurately, a **Restricted Access Nuclear National Wildlife Refuge.** Perception is everything. All the agencies and municipalities need to be honest about what has happened, and present at this site. This should not be a public relations tool, used to desensitize the public to the dangers of this site, or draw people to it, as with the Rocky Mountain Arsenal having school tours with nerve gas bomblets present still. There should be restricted access for this area for perpetuity.
To be protectively protective of the public, there should be deliberate protective and permanent restrictions on allowed activities, such as: no commercialization, promotion, hiking trails, or tours, especially targeted toward any females of childbearing age, young children, or young adults under the age of 21 allowed at the site, as individuals with rapidly dividing cell populations are most vulnerable to radiological and chemical contamination uptake.

**Recognizing that there are complicated and special circumstances associated with this site, please consider the following:**

1. In varying degrees, the RFP has heavily contaminated the industrial area, and to a lesser degree, portions of the surrounding area including buffer zone and off site areas.
2. This contamination includes radionuclides and chemical contaminants that are extremely long lived in the environment. Consider it “permanent” contamination in terms of our civilization.
3. Said contamination, in it’s various forms will continue to be available in terms of exposure of workers and general public by means of redistribution, recontamination, and migration.
   a. Plutonium is statically attracted to litter, grass blades, air particulates, and soil.
   b. Plutonium, other nuclides, and organic chemicals are known to exist in soluble and insoluble forms.
   c. Plutonium and other nuclides are known to exist in large and minute particles less than 0.1 micron in diameter (buoyant, stays in continual resuspension or re-entrainment, with an infinity settling rate), from various processes, including the “alpha recoil” effect and vaporization from heating processes, allowing it to easily pass through HEPA filters.
4. **Resuspension of the very fine Pu particles is an extreme health hazard for workers and public** by means of inhalation or ingestion. In 1988 discussions with the DOE’s Environmental Measurement Lab Director, we learned that the WorldNet Monitoring stations were removed that were near Rocky Flats due to the extreme skewing of data, that at times provided outliers that were up to 5,000 times higher than their lowest point of reference. This was attributed to constant resuspension present. It was described as a field of resuspended Pu particles that blanketed the entire facility that as far as they could tell, would always be there at ground level, where persons would be subject to inhalation exposures.
5. It should be a requirement that all personnel, workers, and public (especially in the case of visitors or tours) be required to wear Personal Protective Equipment (PPE) as an OSHA requirement, to protect against inhalation of alpha particles.
   a. Minimally, this would indicate use of particulate masks, rated to stop particles less than 0.1 micron in diameter, to protect against inhalation of plutonium, uranium, or thorium present at Rocky Flats.
6. Wildlife present have been shown to be “radiologically hot”, including snakes, deer, cattle, gophers, rabbits, etc. This should preclude anyone from gaining permission to capture, hunt, kill, or use any of these animals for consumption or domestication, unless for research purposes.
7. If any wildlife, including deer must be killed for purposes of disease or population control, the carcasses should be tested by an independent agency for radiological and chemical contamination (please refer to attached “Actinide uptake in cattle grazing around Rocky Flats” article).
   a. Said testing should include plutonium, uranium, americium, cesium, strontium, and thorium isotopes, as well as volatile, semi volatile, and inert organic compounds for qualitative and quantitative results.
   b. Tissues and organs should include tracheobronchial lymph nodes, long bone, cranium, gonads, liver, kidney, and other known radiosensitive and chemically sensitive organs.
8. Conservation and vegetation management are recognized as difficult and problematic issues. Due to the tendency of plutonium and other contaminants present at this site being taken up by or adsorbing to vegetation, a **permanent moratorium** on burning off vegetation around this site needs to be implemented for worker and public protection (please refer to attachment *Earth Island Journal Autumn 2001 article Stop the Nuclear Brushfires*). Past practices have
included hand management, cutting or mowing vegetation where needed. We strongly encourage that this continue, as well as use of goatherds for weed management.

9. At most nuclear facilities, **aerial gamma surveys are conducted at 5 to 10 year intervals** to check contamination and migration. The last aerial gamma survey at Rocky Flats was in June of 1989. Repeated requests to obtain an updated survey have been met with silence and no action. At the time the last survey was released, Radiochemist Dr. Edward A. Martell commented on the value of the gamma surveys. He said it was a wonderful tool to see what was going on, as long as people understood that it represented the tip of the iceberg. Since there was such heavy alpha contamination, the aerial gamma survey does not show alpha. What it showed was cohort daughter products such as Americium (associated with Plutonium) and primary radiological contaminants that had qualities of gamma radiation present such as cesium. A new aerial gamma survey should be done as soon as possible, of the plant and surrounding countryside.
   a. **A current gamma survey is needed to determine the extent of migration**, especially the Americium field present from seepage moving off toward the east from the 903 Pad, associated with plutonium present, that was approaching Indiana Avenue in 1989.
   b. **A new aerial gamma survey MUST include the entire buffer zone, and surrounding terrain**, with wider photopeak window settings, not tightened, which limits the readings.
   c. This can assist workers in the area in determining where additional exposure precautions should be taken.

10. **Noxious Weed Management**: In the past, herbicides have been used that have been long lived in the environment such as dieldren and atrazine. There are conservation, ecology, and public exposure groups that have concerns regarding use of further herbicides. We would recommend a de minimus approach to use of further herbicides, with an emphasis on hand management or removal. Since the City and County of Broomfield has established a nearby incarceration facility, perhaps there might be some interest in allowing minimum-security inmates to participate in weed management sessions, with appropriate PPE, and informed consent.

Attached are documents that support EIN’s recommendations.

1. **"Actinide Concentrations in Cattle Grazing Near the Rocky Flats Plant"**

This article is a summary of the study of three cattle herds (Rocky Flats, Roller Coaster (NV), and Nevada Test Site) that were evaluated as biological monitors to measure the uptake of Plutonium (Pu); Americium (Am), and Uranium (U).

The cattle herds that grazed at the Nevada Test Site (NTS) all year, the NTS being an area considered to have radioactive contamination levels far greater than that at Rocky Flats. They were discovered to have smaller concentrations in the NTS study cattle herd than those from the Rocky Flats herd. The Rocky Flats herd that grazed in the North Rocky Flats Buffer Zone, had higher concentrations of Pu, Am and U than the NTS herds, despite the fact that they grazed at Rocky Flats for only 3-5 months out of the year in the Buffer Zone.

The remainder of the year, they grazed up in Brighton, Colorado on wheat, alfalfa and cornfields. They were subjected to a 3-day delay from removal from the pasture and transfer to Nevada for sacrificing. This delay acted as an enhancement of clearance from the body due to the 3 –days worth of road stress and dehydration. Despite this delay, they still had higher concentrations of radionuclides – an indication of heavy uptake in cattle and wildlife.

The 1996 Radioecology & Airborne Pathway Summary Report, by Rockwell International’s George Setlock, Manager and Frank Blaha, Report Coordinator, shows the uptake in Mule Deer by testing the fecal pellets. Testimony of Rocky Flats workers in numerous hearings and television interviews have indicated the workers have caught and radiologically assayed a number of species at the
Rocky Flats facility, including gophers, rabbits, etc., and were shocked at how “screaming hot” (radiologically) they were, and that they were “vectors” redistributing the contamination.

This is an excellent time to add to the knowledge gleaned from the original study of actinide uptake in cattle, by using any mammalian carcasses obtained for qualitative and quantitative bioassay. If any deer has to be culled from the existing herd onsite, this is an opportunity to assess, via an independent entity, what has gone on with the wildlife exposed at the Rocky Flats Facility.


This flyer was originally created about 8 years ago, based upon many (referenced) documents and studies conducted by EPA, DOE and contractors found in document research trips to the DOE repository over 10 years ago. It documents the issues that have been brought up for many years, with refusal by the agencies involved to address most of the issues. Excerpts follow:

- Major sources of Pu was not areas of bare soil (5% of total) but rather areas of prairie grass and thatch. Resuspension of soil/dust starts at 30 – 35 mph wind speed. Grass was found to release Pu particulates with wind speeds of 22 mph; crusty type soil released Pu at wind speeds of 40 mph or more. Grass blades contributed to more airborne Pu activity. Pu resuspension only stops with complete snow cover. Pu dust particles in soil are resuspended by wind, from grass, litter and rain splash – posing inhalation health risk to man and mammal.

- Aerial Gamma Surveys conducted in 1989 revealed high levels of gamma radioactivity emanating from the buildings on both the “cold” and “hot” sides of the RFP. The survey did not appear to include most of the buffer zone areas. If it does exist, it should be de-classified and released to the public. An aerial survey of Standley Lake showed positive readings for the exposed dry sediment.
  - Moist areas that include lakes, other bodies of water, wet conditions, will not give accurate readings due to water acting as an attenuator (blocks) of the gamma emissions that a detector is supposed to record. The same is true for hand held devices used for scanning an exposed employee. If they were wetted down first, there will not be an accurate assessment done.
  - Conditions must be as dry as possible for an accurate assessment to be done.

- Inadequate, infrequent, poor air monitoring program. In the past, air monitors have been calibrated to pick up the wrong particle size, and calibrated to be “insensitive”. The largest and smallest particle sizes of Pu are not being tracked. The system has not included the “enhanced” monitoring program that was discussed years ago, when remedial efforts for re-vegetation failed after DOE tried to plow under Pu contaminated soil to integrate it. During the days this plowing was done, the air monitoring system showed elevated readings for Pu. The monitoring has since had a change – averaging for a week or a month, or “a homogenization” of readings so any radiological releases/spikes will not show up.

- An Americium field caused by contamination migrating laterally off the 903 Pad areas. Twelve years ago, the aerial gamma survey showed it had moved two thirds of the way to Indiana Street. The gross gamma survey shows that there are hot zones all over this facility, and not segregated or limited to the Plutonium Security Zone where Pu processing occurred.

- A Steelworker Union Meeting transcript from the Church vs. U.S. Government litigation case filed for offsite contamination included discussion regarding illegal dumping and clandestine
waste burial, a practice that went on for the life of the Rocky Flats Nuclear Weapons Facility. This can be accessed at: http://members.aol.com/magnu96196/EINHome.html. This case resulted in a $9 million dollar out of court settlement.

3. Rocky Flats and the Haystack Fire

   In May of 1991, a haystack fire across the street from the Rocky Flats Plant burned for several hours, 1,500 feet east of the Indiana Street entrance to the RFP. Ash tested from this fire by the CDPHE concluded that the Pu concentrations were 217.5 times “natural” background. This fire was on public lands impacted by radioactive contaminations that migrated and redistributed in the environment.

4. Living Within a Radioactive Fallout Zone

   In the early 1970’s, Dr. Edward A. Martell and Dr. Stuart Poet did the first independent plutonium and americium survey of the Denver-Fort Collins corridor to determine levels of contamination to the area possibly associated with a serious plutonium fire in May of 1969. They found evidence of approximately 15 Curies of plutonium (16.3 grams of Pu239 is equivalent to 1 Curie) present throughout that region. At that time, the U.S. Government denied any significant releases had occurred. DOE’s Environmental Measurements Lab sent Dr. Phillip W. Krey and Dr. E.R. Hardy to investigate and invalidate Poet and Martell’s findings. They were stunned when in fact Krey and Hardy confirmed their findings. Their isopleth (map) estimating the spread of known contamination in the Denver Metro area appears on the front page of this flyer, next to the U.S. HUD Rocky Flats Advisory Notice. The HUD notice was a liability waiver required of homebuyers in this area for 3 years, until industry lobbyists managed to have it rescinded.

For all the above reasons, Environmental Information Network recommends that **the Buffer Zone surrounding Rocky Flats be held in perpetuity as a “Restricted Access Nuclear Reserve.”**

Respectfully Submitted, (original signed)

Paula Elofson-Gardine  Susan Elofson-Hurst
Executive Director  Publications Director

Attachments: Rocky Flats – Not a Park & Recreation District
Actinide Concentrations in Cattle Grazing near the RFP
Rocky Flats and the Haystack Fire
Earth Island Journal Autumn 2000 Article: Stop the Nuclear Brushfires
Living Within a Radioactive Fallout Zone by CARP