

## **Plutonium Playgrounds:**

### **A Discussion of Government Plans to Re-use Federal Facility Superfund Sites as Recreation Areas Without Providing Adequate Clean Up**

#### Abstract

*Neighborhoods, farmland and communities throughout the nation are littered with waste dumps and other toxic sites too hazardous for human use. The federal government has a nationwide plan to “clean up” and re-use these highly contaminated areas, often for recreation. But if the government’s clean up at Rocky Flats Nuclear Weapons Plant outside Denver is any example, the “clean ups” won’t really be clean. The Department of Energy, the federal agency in charge of the clean up at Rocky Flats, admits that the clean up is not as protective of human health as it could be; the government made trade offs to save money. Nonetheless, recreational uses such as hiking, biking, horse riding and children’s educational trips are all being considered for Rocky Flats.*

*Contrary to federal law, there has been no appropriate analysis of the cumulative environmental impacts of the government’s nationwide plan for re-use of contaminated lands. Unlike State, local and private clean up actions, when federal agencies perform these clean ups, they are subject to only limited regulation and oversight. Additionally, federal agencies have interpreted an important federally-mandated environmental planning process to be optional for other federal agencies.*

## History

On January 23, 1987, President Reagan signed Executive Order 12580, which removed from the Environmental Protection Agency (EPA) its position as enforcer, supervisor, and administrator of Superfund regulations for Federal Facilities.<sup>1</sup> It placed the agencies directly responsible for causing the contamination to begin with in charge of the clean ups.<sup>1</sup> In September 1993, the Clinton Administration directed federal agencies to re-use cleaned up Federal Facilities and make parcels available for public use as quickly as possible with an emphasis/priority on recreational use of natural resources.<sup>2</sup> As a result of the Clinton Administration directive, the EPA developed the *Superfund Redevelopment Initiative* (1999); the DOD came up with the *Fast-Track Clean up Program* (1996); and the DOE is operating the *Accelerating the Paths to Closure Program* (1998). All three programs have a priority on placing Federal Facility Superfund sites into re-use “as expeditiously as practicable.”<sup>3</sup>

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<sup>1</sup> Although they represent only a fraction of the regulated community, Federal Facilities are larger and more complex than many privately owned sites being remediated under the guidance of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, also known as the “Superfund Act”). Council on Environmental Quality 1993 Annual Report, Ch.5, *Public Lands and Federal Facilities*. <http://ceq.eh.doe.gov/reports/1993/chap5.html>

Federal Facilities -- specifically Department of Defense (DOD) and Department of Energy (DOE) facilities -- comprise 60% of the Superfund clean up sites listed on the National Priorities List (NPL). The majority of those sites are under DOE management. The DOE’s Environmental Restoration and Waste Management Program is the largest in the world, representing the largest budget demand for clean up. *Ibid*, page 11.

Since 1993, former Superfund sites have been returned to communities as soccer fields, golf courses, and wildlife refuges, thereby promoting human access to the sites. In fact, the EPA is working closely with private organizations like the US Soccer Foundation, the National Football League, and major league baseball organizations to obtain their support for turning Superfund sites into recreational areas.

### Discussion

#### **The Rocky Flats National Wildlife Refuge – an example of mis-use of re-use plans.**

In 1989, Rocky Flats, the defunct nuclear weapons facility, was the target of the nation's first FBI raid on a federal agency. Reported in the media as "doubtlessly Colorado's most notorious Superfund site," it is about to become the Rocky Flats National Wildlife Refuge.<sup>4</sup> As such, there is a statutory priority on providing recreational access. The Department of the Interior's US Fish and Wildlife Service (USFWS) is already considering management alternatives which include hunting, fishing, bird watching, and environmental education at Rocky Flats.<sup>5</sup>

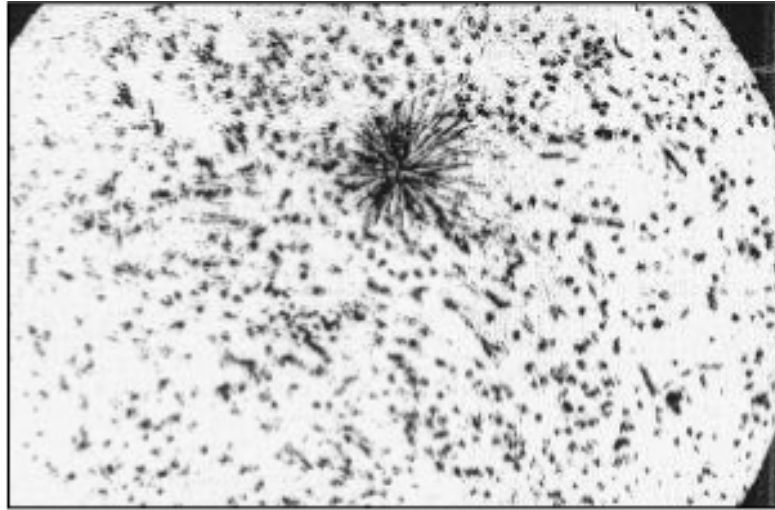
Most experts, including the EPA, agree that there is no safe level of human exposure to the radioactive contaminants that exist in the Rocky Flats

environment. Nonetheless, DOE plans to leave much of the subsurface contamination in place at Rocky Flats <sup>ii</sup> despite the fact that recreation is being considered as a proposed use.<sup>6</sup>

Inhaled/ingested plutonium particles -- even of microscopic size -- cause cancer.<sup>7</sup> Worse, alpha radiation from the particles further causes damage by continually bombarding nearby cells long after the inhalation/ingestion event.<sup>8</sup> Radiation exposure has been proven to cause long-term adverse genetic effects, such as mutations and changes in vital cells, which are passed along for generations. This applies to humans as well as to other animals and plants.

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<sup>ii</sup> The original DOE radionuclide soil action levels (RSALs) for Rocky Flats were set at 651 pCi/g for plutonium. Because of concerns raised by citizens about the clean up level and the manner in which it was derived, an independent study of clean up levels was performed and funded by DOE. With regard to the level of 651 pCi/g originally proposed by DOE, the study concluded: "The results of this analysis showed that soil actions levels...are significantly higher than action or clean up levels at other facilities even when normalized to dose." The independent study determined that appropriate RSALs should be reduced to about 35 pCi/g for plutonium. Nonetheless, DOE ultimately set the RSALs at 50pCi/g for plutonium within the top three feet of soil and an action level of 3,000 pCi/g (based upon concentration and area/volume) was set for the depth interval of three to six feet. See, DOE/EPA/CDPHE, *Final RFCA* (Rocky Flats Cleanup Agreement), Attachment 5, Section 5.0, Soils Contaminated With Radioactive Materials, May 28, 2003, and Till, John, Final report, *Technical Project Summary*, Radionuclide Soil Action Level Oversight Panel. Radionuclide Soil Action Levels at Other Sites, February 2000. <http://www.racteam.com/Experience/Publications/RSALS-Task1-Abs.html>



"The black star in the middle of the picture shows the track marks made by alpha rays emitted from a particle of plutonium-239 in the lung tissue of an ape. The alpha rays do not travel very far, but once inside the body, they can penetrate more than 10,000 cells within their range. This set of alpha tracks (magnified 500 times) occurred over a 48 hour period."

Robert del Tredici. *At Work in the Fields of the Bomb*,

(1987), plate 39, photographed at Lawrence Radiation Laboratory, Berkeley,

California, 9-20-82.

Courtesy of LeRoy Moore, PhD., " *Risk from Plutonium in the Environment at Rocky Flats.*" (November 5, 2002),

Rocky Mountain Peace and Justice Center

Leaving plutonium in the subsurface soils may subject persons on the site to dangerous contamination since it is known that burrowing animals frequent Rocky Flats. They dig up and re-suspend the contamination, as do fires and snow and wind erosion of the soils.<sup>9</sup>

The decision to leave plutonium in the subsurface soils was made to save money. DOE and the other parties to the Rocky Flats Clean up Agreement (the RFCA Parties) admit that plutonium 239/240 and americium 241 are “subject to wind/water erosion and present a direct exposure path. The contamination left in the subsurface poses an unacceptable risk if it were brought to the surface by burrowing animals. [However], with respect to the trade-off of more contaminated surface soil and possibly less subsurface removal, the RFCA Parties have always stipulated that they would have to make some difficult clean up decisions.”<sup>10</sup>

DOE is using only a “hot spot” clean up method, so not all surface contamination will be removed, either. And the public access being proposed will not only create opportunities for re-suspension of contaminated particulates – by the dust and soil turnover created by the recreational activities – but will also involve deep breathing activities that can increase the risk of exposure to contamination.<sup>11</sup>

The USFWS will accept the Rocky Flats site as is given to it by DOE, and, as is its policy, has not been involved in determining the clean up levels and remediation of the site.

## **The National Environmental Policy Act and Federal Facility Superfund Sites**

The National Environmental Policy Act (NEPA) requires all federal agencies to assess the environmental impacts of actions that affect federal lands through the preparation of an Environmental Impact Statement. EPA then determines whether there are unacceptable levels of environmental impacts from the proposed project or decision.<sup>12</sup> However, federal agencies have exempted each other and themselves from NEPA compliance in CERCLA remediation.<sup>13</sup> And there has been no appropriate analysis of the cumulative environmental impact of such decisions nationwide.

### **The Limited Role of the EPA in Federal Facility Clean Ups**

The EPA is not the lead agency in Federal Facility Superfund clean ups, and its role is different from that at non-Federal Facility Superfund sites.<sup>14</sup> Federal agencies cleaning up their own Facilities can implement removal actions, which they claim are consistent with CERCLA requirements without prior EPA approval.<sup>15</sup> The role and authority of EPA is limited to whatever can be agreed upon in Interagency Agreements (IAGs) and Federal Facility Agreements, which provide for federal agency cooperation with EPA and the State.<sup>16</sup> Most IAGs do

not provide enforceable schedules.<sup>17</sup>

The Office of Solid Waste and Emergency Response (OSWER) is the division of EPA that prepares directives for Superfund clean ups. States and private entities performing CERCLA clean ups are required to use OSWER directives. However, compliance is optional at Federal Facilities.<sup>18</sup>

Important competency issues are raised when federal agencies like DOE and DOD are the lead agency in charge of Superfund clean up of their own sites instead of the EPA. Correct sampling techniques, proper analyses, and quality laboratory practices are key in verification of clean up levels at Superfund sites. Yet, an audit conducted by the EPA Office of Inspector General (OIG) found, among other things, that DOD was using an incompetent laboratory at 28 of its installations, including the Rocky Mountain Arsenal National Wildlife Refuge (RMA). The Army, which is responsible for remedial action at RMA, was forced to reject the lab's analyses at a cost of \$3.8 million, which set back the RMA's water monitoring program about one year.<sup>19</sup>

Elsewhere, the OIG Audit found that DOD and DOE were not providing vital laboratory data from their CERCLA clean ups to EPA.<sup>20</sup> The OIG also found laboratory data fraud and poor quality laboratory analysis practices at DOE's Hanford Superfund clean up facility.<sup>21</sup>

The OIG believes that one of the primary reasons for the weakness in data quality was that EPA's oversight role at Federal Facility Superfund sites was not well defined, especially at sites where DOD and DOE were involved. According to the OIG, "Federal agencies must be viewed as having an inherent conflict-of-interest between their desire to have sites removed from the NPL, but at the lowest cost." It concluded that "...EO12580 requires modification."<sup>22</sup>

### Conclusion

Federal agencies are charged with accelerated clean up and re-use of their own Superfund sites as expeditiously as is practicable with an emphasis on recreational use of natural resources. Yet, adequate funds for the clean ups have not been provided. Rocky Flats Nuclear Weapons Plant serves as an example of how government re-use mandates can result in still-contaminated lands being returned to communities for public recreational access.

Federal agencies in charge of Federal Facility Superfund clean ups are not subject to the same requirements of CERCLA and NEPA, or of EPA oversight as are other Superfund clean ups. Federal agencies in charge of Federal Facility Superfund clean ups have an inherent conflict-of-interest with regard to streamlined clean up of the facilities they caused to be listed on the NPL in the first place. EPA's oversight responsibilities are ambiguous at best.

### Recommendations

1. Require Federal Facility clean ups to be performed to at least recreational standards in consideration of re-use, since priority is placed on a recreation end-state.
2. Mandate that managers of the re-used site, such as the USFWS, participate in determining clean up levels and remediation especially when management of the re-used site places priority on human access.
3. Enforce standard EPA Quality Assurance/Quality Control Practices on Federal Facilities CERCLA clean ups, such as split samples, duplicate samples, and independent random sampling by EPA and/or State health departments, under EPA oversight.
4. Require federal agencies to follow OSWER directives and guidances.
5. Require federal agencies to perform an EIS prior to CERCLA remedial actions to comply with NEPA.

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Jacqueline Brever, B.S. Environmental Restoration and Waste Management;  
MEPM (Masters degree in Environmental Policy and Management)  
PO Box 2325  
Grand Junction, CO 81502  
Email: [amorigan01@msn.com](mailto:amorigan01@msn.com)

## References

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<http://www.epa.gov/fedsite/eo12580.html>
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- <sup>3</sup> CERCLA, 42 USC 9620, Section 120, Federal Facilities - *Application of Act to Federal Government (e) (3) Completion of Remedial Actions*.  
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- <sup>4</sup> Jargon, Julie, *Westword*, "This is a Job for Superfund? Colorado's legacy of contamination spreads far and wide," July 5, 2001.
- <sup>5</sup> The National Wildlife Refuge Administration Act, 16 USC Section 668dd, and ERO Resources Corporation for USFWS, *Rocky Flats National Wildlife Refuge Scoping Report, Public Comments and Responses Section*, January 2002.
- <sup>6</sup> DOE/EPA/CDPHE, *Final RFCA* (Rocky Flats Cleanup Agreement), Attachment 5, Section 5.0, Soils Contaminated With Radioactive Materials, May 28, 2003, and ERO Resources Corporation for USFWS, *Ibid*.
- <sup>7</sup> Cotton, F. Albert and Wilkinson, Geoffrey, *Advanced Inorganic Chemistry*, 2<sup>nd</sup> Edition, p.1102, 1966. As quoted by Moore, LeRoy, Ph.D., *Rocky Flats, A Local Hazard Forever. Public Shortchanged on Cleanup, Wildlife Refuge a Bad Precedent for Other Sites*. Draft, January 2004.
- <sup>8</sup> Biggs, W. Gale, *Emissions and Monitoring of Plutonium from Rocky Flats*, March 7, 1996. As quoted by Moore, LeRoy, Ph.D., *Ibid*.
- <sup>9</sup> DOE/EPA/CDPHE, *Final RFCA*, *Ibid*; Moore, LeRoy, Ph.D., *Ibid*; and Till, John, *Final report*, February 2000.  
<http://www.racteam.com/Experience/Publications/Projects.html>
- <sup>10</sup> DOE/EPA/CDPHE, *Final RFCA*, at Response to Comments. Memorandum Describing Final Approved Modifications to the RFCA Attachments, page 1 and Category A, Public Participation Process, page 2, May 28, 2003.

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<sup>11</sup> See, EPA's Risk Assessment Website, National Center for Environmental Assessment.

<sup>12</sup> EPA Region 8, *What is NEPA?* Downloaded 06/08/03.  
<http://www.epa.gov/Region8/compliance/nepa/nepawhat.html>

<sup>13</sup> DOE, *Memorandum to Secretarial Officers and Heads of Field Organization*. July 11, 2002, <http://www.doe.gov>, and Federal Facilities Restoration and Reuse Office, *Guidance on Accelerating CERCLA Environmental Restoration at Federal Facilities*. Memorandum between EPA/DOD/DOE, pages 2 & 3, August 22, 1994.  
<http://www.epa.gov/swerffrr/documents/822memo.html>

<sup>15</sup> DOE, Office of Environmental Management, *CERCLA Authority. Frequently Asked Questions (FAQs)*, Downloaded June 8, 2003.  
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<sup>16</sup> DOE & EPA, *Policy On Decommissioning of Department of Energy Facilities Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*, May 25, 1995.  
<http://www.mng-ltd.com/ffrro/documents/doe595.html>

<sup>17</sup> *Ibid.*

<sup>18</sup> OSWER, *Reuse Assessments: A Tool to Implement the Superfund Land Use Directive*, OSWER 9355.7-06P, June 4, 2001.

<sup>19</sup> OIG, *Office of Inspector General Report of Audit: Laboratory Data Quality at Federal Facility Superfund Sites*, Section 6: Laboratory Evaluations Not Shared, page 1. Downloaded 06/08/03. <http://www.epa.gov/swerffrr/documents/data-quality/epaig-6.html>

<sup>20</sup> *Ibid*, Section 7: EPA Oversight Role Not Defined, page 2.

<sup>21</sup> *Ibid*, Section 6: Laboratory Evaluations Not Shared, page 2.

<sup>22</sup> *Ibid*, Section: Recommendations and Agency Comments, page 3.