

Office of the Governor  
Constituent-Tracking Sheet

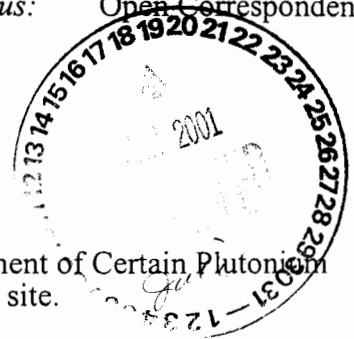


Control No: 47583 Received: 01/18/2001 Due: 02/01/2001

Issue: Environment-Toxic Waste

Type: Letter  
Status: Open Correspondence

Origin: Ms. Carolyn L. Huntoon  
Department of Energy, Environmental Management  
Washington, DC 20585



Remarks:

Ms. Huntoon has enclosed the DOE's amended Record of Decision on Management of Certain Plutonium Residues and Scrub Alloy Stored at the Rocky Flats Environmental Technology site.

Referred To: Pete Maggiore  
Action: For Your Review/Action  
Referred: 01/18/2001 Due: 02/01/2001

Notes:

Should Be Referred To: Greg Lewis

Final Disposition Date:   /  /  

**COPY**

- For Governor's Signature
- Letter Response ( CC: Enclosed )
- Phone Response ( Explain Below )
- No Response Required
- Other/Explanation:

*Greg,*  
*JVI*  
*Rochelle*  
*Zappe*



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Department of Energy  
Washington, DC 20585

*Low  
Environment*

JAN 12 2001

The Honorable Gary E. Johnson  
Governor of New Mexico  
State Capitol, Fourth Floor  
Santa Fe, NM 87503

Dear Governor Johnson:

Enclosed is the Department of Energy's (DOE) amended Record of Decision (ROD) on Management of Certain Plutonium Residues and Scrub Alloy Stored at the Rocky Flats Environmental Technology Site. The Department has decided to dispose of approximately 315 kilograms of plutonium fluoride residues that are currently stored at the Rocky Flats Site at the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico.

In an earlier ROD (63 FR 66136, December 1, 1998), DOE decided that the plutonium fluoride residues would be shipped to the Savannah River Site (SRS) for processing and storage pending disposition. With the opening of the WIPP in New Mexico on March 26, 1999, and other circumstances, including delays in securing shipping container certification required prior to transporting the plutonium fluoride residues to SRS, there are no longer cost, waste management, or schedule advantages in shipping the plutonium fluoride residues to SRS for separation. DOE has now decided to blend down the plutonium fluoride residues with inert material to less than ten percent, apply a variance to the Safeguards Termination Limits, and dispose of these residues at WIPP. This will help avoid delays in meeting the closure schedule for the Rocky Flats Site.

If you have further questions, please contact me at (202) 586-7710, visit our home page at [www.em.doe.gov](http://www.em.doe.gov), or have your staff contact Mr. Richard Dickerson, Deputy Assistant Secretary for Intergovernmental and External Affairs, at (202) 586-6784.

Sincerely,

*Carolyn L. Huntoon*

Carolyn L. Huntoon  
Assistant Secretary for  
Environmental Management

Enclosure



# **Amendment**

to the

# **Record of Decision**

**on Management of Certain Plutonium Residues and Scrub Alloy  
Stored at the Rocky Flats Environmental Technology Site**

**January 11, 2001**



**U. S. Department of Energy  
Assistant Secretary for Environmental Management  
Washington, DC 20585**

## DEPARTMENT OF ENERGY

### Management of Certain Plutonium Residues and Scrub Alloy Stored at the Rocky Flats Environmental Technology Site

**AGENCY:** U.S. Department of Energy

**ACTION:** Amended Record of Decision

**SUMMARY:** The Department of Energy (DOE) has decided to revise its approach to managing approximately 315 kg of plutonium fluoride residues (containing approximately 142 kg of plutonium) that currently are stored at the Rocky Flats Environmental Technology Site (Rocky Flats Site). In an earlier Record of Decision (63 FR 66136, December 1, 1998), DOE decided that these plutonium fluoride residues would be shipped to the Savannah River Site (SRS) for processing and storage pending disposition. Due to the opening of the Waste Isolation Pilot Plant (WIPP) in New Mexico on March 26, 1999, and other circumstances, including delays in securing shipping container certification required prior to transporting the plutonium fluoride residues to SRS, DOE has now decided to prepare the plutonium fluoride residues appropriately and ship them to WIPP for disposal. This will help avoid delays in meeting the closure schedule for the Rocky Flats Site.

**ADDRESSES:** The potential environmental impacts of alternative approaches for management of these residues are analyzed in the *Final Environmental Impact Statement on Management of Certain Plutonium Residues and Scrub Alloy Stored at the Rocky Flats Environmental Technology Site* (hereinafter referred to as the Residues EIS) (DOE/EIS-0277F, August 1998) and were part of the basis for three prior Records of Decision issued for the plutonium-bearing residues at the Rocky Flats Site. Copies of the Residues EIS; the first and second Records of Decision (63 FR 66136, December 1, 1998, and 64 FR 8068, February 18, 1999, respectively); the first Amended Record of Decision (64 FR 47780, September 1, 1999); and this Amended Record of Decision and the Supplement Analysis (referenced herein) can be accessed from the DOE's NEPA Web site at <http://www.tis.eh.doe.gov/nepa>, under NEPA Analyses, or can be obtained by contacting the Center for Environmental Management Information, P.O. Box 23769, Washington, DC 20026-3769, telephone 1-800-736-3282 (in Washington, DC: 202-863-5084).

For further information concerning the management of plutonium residues and scrub alloy currently stored at the Rocky Flats Site, contact:

Dr. W. Eric Huang, Program Manager  
Rocky Flats Office (EM-33)  
Office of Site Closure  
Environmental Management  
U.S. Department of Energy  
19901 Germantown Road  
Germantown, MD 20874  
Telephone: 301-903-4630

For further information concerning DOE's National Environmental Policy Act (NEPA) process, contact:

Ms. Carol Borgstrom, Director  
Office of NEPA Policy and Compliance (EH-42)  
U.S. Department of Energy  
1000 Independence Avenue, S.W.  
Washington, DC 20585  
Telephone (202) 586-4600, or leave a message at 1-800-472-2756

## SUPPLEMENTARY INFORMATION:

**I. Background**—In August 1998, DOE issued the Residues EIS that assessed the potential environmental impacts of processing certain plutonium residues and scrub alloy stored at the Rocky Flats Site near Golden, Colorado, in preparation for disposal or other disposition. These materials were produced in conjunction with nuclear weapons activities conducted by DOE during the Cold War and the materials are no longer needed. Currently, DOE is cleaning up and disposing of (where appropriate) such materials. The plutonium residues analyzed in the Residues EIS included approximately 315 kg of plutonium fluoride residues containing approximately 45 percent plutonium by weight (approximately 142 kg of plutonium). In the Residues EIS, the plutonium fluoride residues were included as part of a category called “wet residues,” having an average of approximately 7 percent plutonium by weight. (Residues EIS Table 2-1.)

The Residues EIS analyzed three alternative technologies and a no-action alternative for processing plutonium fluoride residues stored at the Rocky Flats Site. The selected alternative for the plutonium fluoride residues in the first Record of Decision in 1998 was the preferred alternative in the Residues EIS, which is *Purex processing and storage at SRS pending disposition* (italicized below).

- Alternative 1. Dissolving the plutonium fluoride residues in acid and precipitating the plutonium with oxalic acid, at the Rocky Flats Site. The recovered plutonium would be packaged for storage at the Rocky Flats Site. (This is the no-action alternative.)
- Alternative 2. Blending down the plutonium fluoride residues at the Rocky Flats Site with an inert material so that each container would meet the safeguards termination limit for plutonium fluorides (0.2 percent plutonium by weight). The blended material would then be packaged into pipe overpack components and subsequently packaged into 55-gallon drums for transportation and disposal at the Waste Isolation Pilot Plant<sup>1</sup> (WIPP).
- Alternative 3. Two technologies for separation of plutonium from plutonium fluoride residues were analyzed.
  - *Repackaging the plutonium fluoride residues at the Rocky Flats Site for transportation to SRS and separation of the plutonium there using the Purex*

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<sup>1</sup>The Waste Isolation Pilot Plant, located near Carlsbad, New Mexico, is DOE's geologic repository for disposal of defense-related transuranic wastes. Transuranic waste contains alpha-emitting radionuclides with half-lives greater than 20 years in concentrations greater than 100 nanocuries per gram of waste at time of assay.

*process. The processed plutonium would be stored at SRS pending disposition as mixed oxide nuclear fuel or disposed of as vitrified high-level waste in a geologic repository.*

- Dissolving the plutonium fluoride residues in acid and precipitating the plutonium with oxalic acid at the Rocky Flats Site (this is the same as the no-action alternative). The recovered plutonium then would be dispositioned as mixed oxide nuclear fuel or disposed of as vitrified high-level waste in a geologic repository.

**II. Original Decision**—In addition to this amended Record of Decision, DOE has issued two Records of Decision and an earlier amended Record of Decision for the final Residues EIS. The first Record of Decision, issued on November 25, 1998 (63 FR 66136, December 1, 1998), addressed materials from each of the categories of Rocky Flats plutonium residues (i.e., ash, salt, wet, and direct repackage) and scrub alloy. This first Record of Decision (Section VII.D.1) stated that DOE had decided to transport the plutonium fluoride residues to SRS and use the F-Canyon, where the Purex plutonium separation process is located, to separate plutonium (i.e., one of the two sub-alternatives of Alternative 3 in the Residues EIS). The separated plutonium would then have been subject to disposition as mixed oxide fuel or disposed of as vitrified high-level waste pursuant to decisions that DOE made after completion of the *Surplus Plutonium Disposition Environmental Impact Statement* (DOE/EIS-0283, November 1999; Record of Decision, 65 FR 1608, January 11, 2000).

The first Record of Decision (Section VII.D.2) explained that the Purex plutonium separation process at SRS was selected for the plutonium fluoride residues because it posed less technical risk and would cost less than the establishment of a new acid dissolution/plutonium oxide recovery capability at the Rocky Flats Site (Alternative 1). The Record of Decision further explained that blend down<sup>2</sup> (to meet the safeguards termination limit) (Alternative 2) would result in a very large increase in the amount of transuranic waste requiring disposal, which would increase the cost of disposing of the material.

**III. Events Since Issuance of the First Record of Decision**—Since issuance of the first Record of Decision in 1998, DOE has been preparing to ship the plutonium fluoride residues to SRS for separation and has not undertaken any activity that would alter the chemical or physical conditions of these residues. Initially, DOE had planned to begin shipment of the plutonium fluoride residues to SRS by January 2000 and to complete these shipments by September 2000. Removal of these materials from the Rocky Flats Site by September 2000 would have supported near-term closure of the Protected Area<sup>3</sup> of the Site and, subsequently, closure of the entire Site by 2006.

Before shipping plutonium fluoride residues to SRS, however, DOE must certify the shipping container for plutonium fluoride residues, and additional testing required before certification would take at least 15 months to complete. Further delay in implementing the earlier decision

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<sup>2</sup> Blend down is a process in which an inert material is mixed with a plutonium-bearing residue to reduce its plutonium concentration.

<sup>3</sup>The Protected Area is the area at the Rocky Flats Site that is encompassed by physical barriers, subject to access control, surrounding a material access area or area containing special nuclear material.

(i.e., plutonium separation using the Purex process at SRS) would in turn delay closure of the Protected Area and associated buildings, extend decommissioning schedules, and ultimately delay closure of the entire Rocky Flats Site. A delay in the closure of the Rocky Flats Site would be costly due to extended site security needs and site services, eliminating the cost advantages of implementing the earlier decision.

At the time the Residues EIS was being prepared, DOE believed that it was impractical to apply a variance to safeguards termination limits for plutonium fluoride residues due to the high plutonium concentration and the relative ease of recovering the plutonium from the residue matrix. Although the amount of the plutonium fluoride residues was small (315 kg), the amount of plutonium present in these residues (about 142 kg) subjected them at that time to a set of safeguards requirements to maintain control of the residues and to ensure that the plutonium in them was not stolen or diverted for illicit use (e.g., to construct a nuclear weapon). Therefore, the Residues EIS only analyzed the impacts of blending and repackaging the plutonium fluorides to meet the safeguards termination limits for them (0.2 weight percent), and did not analyze an alternative to blend these particular residues down to less than 10 weight percent plutonium.

The Rocky Flats Site has since developed a blending matrix of inert material that would result in a blended material from which plutonium recovery is difficult. This development, in addition to the application of other conditions, has allowed the Rocky Flats Site to obtain a "variance" to the safeguards termination limits from DOE's Office of Defense Nuclear Nonproliferation. The other conditions applied include a modification of the packaging components of the pipe overpack container to make it more difficult to divert any plutonium and a re-evaluation of the recovery processing steps required to separate plutonium from the plutonium fluoride residues in their present condition. All these special conditions have made the application of a variance for the plutonium fluoride residues and their shipment to WIPP practical.

WIPP's opening in March 1999 and the issuance of WIPP's hazardous waste permit by the New Mexico Environment Department in November 1999 provided DOE with the option to dispose of a blended-down plutonium fluoride residues matrix at WIPP. Because the plutonium fluoride residues contain hazardous constituents, these residues would be subject to the requirements of WIPP's hazardous waste permit.

**IV. Decision**—After consideration of the potential environmental impacts identified in the Residues EIS, the new circumstances discussed above, and a Supplement Analysis (DOE/EIS-0277-SA-1), discussed below, DOE has decided to blend down the plutonium fluoride residues with inert material to less than 10 percent, apply a variance to the safeguards termination limits, and dispose of these residues at WIPP.

**V. Basis for the Decision**—The delay in obtaining the certification for the shipping container needed to transport the plutonium fluoride residues to SRS could prevent DOE from closing the Rocky Flats Site by 2006. DOE now has the ability to blend down this category of residues to less than 10 weight percent of plutonium and meet the variance requirements for safeguards termination limits. For the reasons described below in Section VI, DOE has concluded that blending the plutonium fluoride residues down to less than 10% plutonium by weight and shipping them to WIPP for disposal would have low impacts, well within those analyzed in the Residues EIS.

DOE's decision complies with Section 309 of the Fiscal Year 2001 *Energy and Water Development Appropriations Act* (Public Law 106-377), which specifies that: "None of the funds in this Act may be used to dispose of transuranic waste in WIPP which contains concentrations of plutonium in excess of 20 percent by weight for the aggregate of any material category on the date of enactment of this Act, or is generated after such date. For the purposes of this section, the material categories of transuranic waste at the Rocky Flats Environmental Technology Site include: (1) ash residues, (2) salt residues, (3) wet residues, (4) direct repackage residues, and (5) scrub alloy as referenced in the 'Final Environmental Impact Statement on Management of Certain Plutonium Residues and Scrub Alloy Stored at the Rocky Flats Environmental Technology Site.'" (Plutonium fluoride residues are part of the "wet residues" category, which overall contains approximately 7 percent plutonium by weight.)

Furthermore, disposal of the plutonium fluoride residues at WIPP now provides the least technical risk and most cost-effective approach to the management of plutonium fluoride residues, and supports the Rocky Flats closure schedule of 2006. Therefore, there are no longer cost, waste management, or schedule advantages in shipping the plutonium fluoride residues to SRS for separation.

## **VI. Prior NEPA Analysis**

DOE prepared a *Supplement Analysis for the Final Environmental Impact Statement on Management of Certain Plutonium Residues and Scrub Alloy Stored at the Rocky Flats Environmental Technology Site* (DOE/EIS-0277-SA-1). This Supplement Analysis was developed to determine whether the activities and impacts associated with blending down the plutonium fluoride residues to less than 10 percent plutonium by weight with a matrix of inert material, applying a safeguard termination limit variance, and disposing of the resulting blend at WIPP were encompassed within previous NEPA reviews or would present any significant new information or circumstances relevant to environmental concerns.

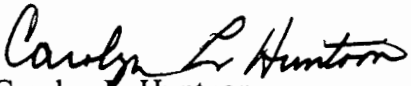
The results of this Supplement Analysis indicated that the activities and potential environmental impacts associated with the new action are encompassed within the activities and impacts analyzed under Alternative 2 (blend down) of the Residues EIS. In addition, the overall impacts for the new action will be very small for both the public and workers and within the levels of impacts considered in the Residues EIS. Worker exposure during the new blend down activities would be reduced to 8 person-rem from 365 person-rem estimated in the Residues EIS. The number of Latent Cancer Fatalities (LCF) for the total worker population would be smaller for the new action (0.003) than for Alternative 2 (0.142). The difference in LCF for the total worker population between Alternative 2 and the new action is a result of two factors. The first is a reduced duration of the blend down operation as blending down to less than 10 weight percent plutonium rather than 0.2 weight percent plutonium will result in a shorter period in which the material is handled. Secondly, enhanced worker shielding will reduce worker exposure during the blend-down activities. Additionally, the new action has fewer drums for transportation reducing the potential for traffic accidents during transportation of plutonium fluoride residues to WIPP. Accordingly, DOE determined that carrying out the new action would not constitute a substantial change in actions previously analyzed and would not constitute significant new circumstances or information relevant to environmental concerns and bearing on the previously



analyzed action or its impacts. Therefore, DOE did not need to undertake additional NEPA analysis before issuing this amendment to the 1998 Record of Decision.

**VII. Conclusion**—This Amended Record of Decision is effective upon being made public, in accordance with DOE's NEPA implementation regulations (10 CFR 1021.315).

Issued in Washington, D.C., this 11<sup>th</sup> day of January 2001.

  
Carolyn L. Huntoon  
Assistant Secretary for  
Environmental Management