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July 30, 1993

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Mr. Jerry L. Bellows, Area Manager  
Los Alamos Area Office  
Department of Energy  
528 35th Street  
Los Alamos, New Mexico 87544-5000

RE: Request to Evaluate TA-55 Activity Related to Plutonium Recovery

Dear Mr. Bellows:

This is a reply to the January 19, 1993 letter from the Department of Energy (DOE)/Los Alamos National Laboratory (LANL) to Mr. Benito J. Garcia (Bureau Chief, New Mexico Hazardous and Radioactive Materials Bureau), concerning requirements applicable to plutonium recovery at Technical Area (TA) 55. DOE/LANL believes that the processes at TA-55 associated with the recovery of plutonium commingled with hazardous waste may fall within the scope of the recycling regulations and therefore may be considered exempt from the hazardous waste permitting requirements.

The New Mexico Environment Department (NMED) has reviewed this matter and has prepared the following response:

**1. Nitrated Cellulose Rag/Plutonium as Hazardous Waste**

Cellulose rags soaked with an organic compound are used to wipe the interior surfaces of the glove box to remove plutonium particles and other wastes. The commingled plutonium, cellulose rag, organic compound, and other waste are considered to be solid waste. During the cleaning process, the cellulose rag is exposed to nitric acid, which nitrates the cellulose. Nitrated cellulose is an easily ignited material and is reactive. Thus the nitrated cellulose rag exhibits the characteristics of ignitability and reactivity as defined in the New Mexico Hazardous Waste Management Regulations (HWMR-7) (Part II, 40 CFR §261.21 and §261.23 respectively) and is subject to regulation under the HWMR-7. The mixture of nitrated cellulose rag and plutonium is considered a mixed waste and is also subject to regulation under the HWMR-7 (40 CFR §§260-270).



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## **2. Nitrated Cellulose Rag Treatment**

The recovery of plutonium involves a number of distinct steps. The process consists of ashing (a batch thermal treatment), reanalysis, crushing (and sieving), calcination, acid leach, ion exchange, precipitation (as an oxalate), and calcination to a stable oxide. Further treatments to produce other compounds or plutonium metal have not been described.

In the letter received January 19, 1993 LANL described the nitrated cellulose rag treatment and plutonium recovery process as having two functions: 1) treatment of the nitrated cellulose rag and 2) recovery of plutonium. During the initial thermal treatment "ashing" step the ignitability and reactivity characteristics are removed. NMED views the thermal treatment of nitrated cellulose rag as a treatment subject to regulation under HWMR-7, Part III, 40 CFR §262.10.

Thermal treatment of wastes exhibiting the characteristic of reactivity is a common treatment process. Thermal treatment has been effective in disposing of outdated ordinance for example. Operators of such facilities are under obligation to properly and safely dispose of these reactive wastes. The nitrated cellulose rag "ashing" process, although specialized, accomplishes the same objectives as other thermal processes. NMED recognizes LANL's obligation to perform thermal treatment of the nitrated cellulose rags properly and safely. NMED therefore considers full regulation of the thermal treatment of the nitrated cellulose rag as an appropriate measure.

## **3. Precious Metal Exclusion**

LANL has proposed that the plutonium recycling process be excluded under HWMR-7, Part II, Section 40 CFR 261.6(a)(2), which states:

"The following recyclable materials are not subject to the requirements of this section but are regulated under Subparts C through G of Part 266 of this chapter and all applicable provisions in Parts 270 and 124 of this chapter [40 CFR §§260-299]: ... (iv) Recyclable materials from which precious metals are reclaimed (Subpart F [Part VII, 40 CFR §266.70]);"

HWMR-7, Part VII, Section §266.70(a), (Subpart F) states that:

"The regulations of this subpart apply to recyclable materials that are reclaimed to recover economically significant amounts of gold, silver, platinum, palladium, iridium, osmium, rhodium, ruthenium, or any combination of

these."

Plutonium does not appear in this list of precious metals. Technically speaking, there is no cause for NMED to grant an exclusion under this subpart. LANL states that it never intended to suggest that plutonium is a precious metal and subject to Subpart F. In the January 19, 1993 letter, LANL continues by drawing an analogy between plutonium and the precious metals and their respective reclamation processes. LANL's conclusion is that the recovery of plutonium is viewed by the regulations as being similar to recovery of the precious metals and should be excluded from regulation in the same manner precious metals are. NMED has not drawn the same conclusion. Since plutonium is not listed with the precious metals, it should not be extended the same regulatory exclusions, but should be regulated to the extent allowable under these regulations.

#### **4. Plutonium Reclamation**

LANL has stated that the recovery of precious metals is an example of reclamation of a high value material from a hazardous waste. There has been no claim that plutonium is a precious metal or that the permit exclusion afforded the precious metals applies directly to plutonium. LANL merely points out the similarities between plutonium and the precious metals and requests similar treatment under the precious metals recovery exclusion. NMED does not view the analogy as sufficient evidence to exclude the process of thermal treatment of nitrated cellulose rag from full regulation.

LANL has pointed out that the preamble of the Federal Register, dated Friday January 4, 1985; Definition of Solid Waste does not recognize a distinction between the recovered material values being the hazardous or non-hazardous component of the waste. Even though the hazardous waste is not recovered, it is treated to remove the ignitability and reactive characteristics. As previously stated in the Section 2 titled Nitrated Cellulose Rag Treatment, NMED considers the full regulation of the thermal treatment of the nitrated cellulose rag as an appropriate measure.

In the January 19, 1993 letter, LANL has made an extensive presentation centered on the recovery of plutonium as a "reclamation" process. LANL has employed the broader application of the term used in the Federal Register, dated Friday January 4, 1985; Definition of Solid Waste. This application was used to promulgate the changes to Part II, 40 CFR §261 and Part VII, 40 CFR §266, including the special requirements for the precious metals. NMED contends that since plutonium is not listed with the precious metals in Part VII, 40 CFR §266.70, it should not be extended the same regulatory special requirements, but should be regulated to the extent allowable under these regulations.

#### **Conclusion**

In summary, NMED finds that:

1. the thermal treatment of the nitrated cellulose rag is a process that should be regulated similar to other thermal treatments;
2. comparing plutonium and plutonium recovery to the precious metals and their recovery process is insufficient evidence to justify exclusion from full regulation; and
3. the application of the term "reclamation" in its broad sense which is used to promulgate the specific exclusions does not provide sufficient evidence to justify the exclusion from regulation.

NMED concludes that the requested exclusion of the thermal treatment of the nitrated cellulose rag from full regulation is not justified. Therefore, LANL is required to submit a permit application for the thermal treatment of the nitrated cellulose rag. Since this is a mixed waste issue, NMED suggests that the permit be submitted with other mixed waste permit applications.

Should DOE/LANL believe that hazards to human health and/or the environment exist due to the storage or presence of these contaminated rags and immediate action needs to be taken, DOE/LANL should submit a request and justification for an emergency permit to NMED.

If you have any questions please contact Mr. Carl Stubbs of my staff at (505) 827-4308.

Sincerely,

Barbara Hoditschek  
Program Manager  
RCRA Permit Section

xc: Benito Garcia, NMED, HRMB  
Barbara Hoditschek, NMED, HRMB  
David Neleigh, US EPA Region VI  
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