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Department of Energy
Richland Operations Office
P. O. Box 550
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REPOSITORY DOE CENTRAL
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W. A. Brobst, Chief
Transportation Branch, ECT, HQ

PLUTONIUM AIR SHIPMENTS

Our contractor, Hanford Environmental Health Foundation, operates the United States Transuranium Registry for Richland Operations Office under Contract EY-76-C-06-1837. The U. S. Transuranium Registry, as part of its mission, is studying the effects of exposure to plutonium on people who work with plutonium. A major part of this program is the analysis of tissue samples taken during autopsies from current and former workers who have recently died. The Registry plans to have such tissue samples frozen and then shipped to DOE's facility at Los Alamos, New Mexico. As these tissues contain miniscule amounts of plutonium, we are hereby requesting that the Secretary provide RL with an exemption from the provisions of Title V of Public Law 94-187. This would allow the shipment of these tissue samples via aircraft. The authority for granting such an exemption is contained in Section 502 (3) of the above-mentioned law.

As an alternative to granting such an exemption, the Secretary might consider setting a lower limit for the requirement of such exemptions. In this case, the material to be shipped does not meet the definition of a radioactive material (see 49 CFR 173.389 (e)), under the DOT's transportation regulations. Therefore, perhaps a lower limit for application of this prohibition could be set at the above-mentioned definition of a radioactive material (0.002 microcuries per gram of material).

In order for the Transuranium Registry to adequately analyze the subject tissue samples, they must be moved to a central laboratory with the capability to detect the presence of minute quantities of plutonium. Also, it is necessary for this central laboratory to, over a period of time, develop a library of samples for continuing research. In order for a complete accurate analysis of the samples, they must arrive at the central laboratory with as little deterioration as possible. Therefore, it is planned that the samples will be shipped in a frozen condition. In order to maintain this frozen state, transit times must be kept to a minimum. Therefore, we feel that air shipment is absolutely necessary. Most of these shipments will terminate

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at Los Alamos, New Mexico. Neither ourselves nor Albuquerque personnel have found a shipping mode, other than air, which can provide the prompt service to Los Alamos necessary to maintain the frozen condition of the samples.

It is expected that there will be between 10 and 20 shipments of tissues from recently deceased individuals per year. However, RL has samples from 19 autopsy cases on hand which it desires to ship upon the granting of this exemption. The probable principal origins will be Richland, Savannah River, Rocky Flats, and Los Alamos. Principal destinations will probably be Rocky Flats and Los Alamos. There may be several additional origins for shipments as this program develops.

The current shipping plan is that, upon completion of an autopsy, the organization which performed the autopsy will deliver the frozen sample via land transportation to the nearest DOE facility. RL's site support contractor, Rockwell Hanford Operations, will then provide the DOE facility with shipping instructions for the air shipment of the frozen samples to its destination. Past experience indicates that these packages will contain plutonium and/or other transuranic elements at activity levels ranging from the femtocurie to the nanocurie levels. There has been no detectable radiation at the surface of these packages.

The method of packaging the tissue samples will be to seal a sample in a plastic bag, which will in turn be surrounded with dry ice, and then packaged in two-inch-thick styrofoam containers. The styrofoam container will be packed inside either a cardboard or plastic overpack.

As these shipments will be exempt from DOT shipping regulations (see 49 CFR 173.389 (e) and 173.391), it is our intention to describe these shipments on shipping documents as "Frozen Human Tissue".

Your prompt attention to this requested exemption will allow our contractor to proceed with his mission. Any questions concerning this matter should be referred to either Mr. J. M. Peterson (FTS 444-6731) of my staff, or HEHF's Mr. Carlos Newton (FTS 444-6019).

Thank you.

Jack C. Cummings, Director
Contracts Division

CD:JMP

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