

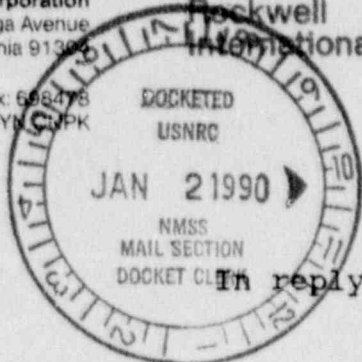
70-25  
PDR

Rocketdyne Division  
Rockwell International Corporation  
6633 Canoga Avenue  
Canoga Park, California 91304

Telex: 698478  
ROCKETDYN SMPK



Rockwell International



December 22, 1989

In reply refer to 89RC16167

Glen L. Sjoblom  
Acting Chief  
Fuel Cycle Safety Branch  
Division of Industrial and  
Medical Nuclear Safety,  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Supplement to Application for Renewal  
to License No. SNM-21, Docket 70-25 issued  
to Rocketdyne Division of Rockwell International  
Corporation.

Reference: RI Letter R.T. Lancet to Leland C. Rouse,  
"same subject", 89RC14432, December 6, 1989

Dear Mr. Sjoblom:

In the reference letter we provided additional clarification and information as requested by members of your staff. This letter provides additional clarification to our license renewal request by defining the limited R&D associated with the amended license use reduction to 6g of plutonium (SNM-21 license amendment No. 4, December 12, 1989).

The R&D to be performed is limited to the first phase of the TRUMP-S program. The purpose of the TRUMP-S program at Rocketdyne is to develop fundamental thermodynamic and electrochemical data on various actinide materials so that processes can be developed to separate long-lived radioactive isotopes from spent nuclear fuel. These long-lived isotopes would be destroyed (fissioned) in a nuclear reactor or accelerator, thereby eliminating the long-term hazard associated with the disposal of spent nuclear fuel. The program at Rocketdyne will use small quantities of actinide materials with the work being performed in a facility with multiple barriers to guard against their release to the environment.

9001100074 891222  
PDR ADCK 07000025  
C PDC

DF03  
26225  
Adapt info

89RC16167  
22 December, 1989  
Page 2.

For the first phase of the TRUMP-S program, five grams of plutonium have been procured and are stored in the Source and Special Nuclear Material Vault (TO64). As required, material will be transferred to the RIHL (building T020). Material handling will be conducted within an inert atmosphere glove box in the Alpha Room of this facility. The inert atmosphere (high purity argon) is required for experimental reasons; e.g. atmospheric air, carbon dioxide and water vapor will interfere with the test. No more than one gram of plutonium will be in the glove box at one time. Approximately 0.1 gram of plutonium (or less in some experiments) will be dissolved in molten cadmium (-500 C) in the test cell. The cell is made up of ceramic (aluminum oxide) and metal (tantalum) parts. A low-melting salt (lithium-potassium chloride) is added, and stirrers and various electrodes are placed in the cell. The overall dimensions of the cell are approximately 2 in. diameter and 5 in. tall. From the internal configuration of the cell and varying the mode of operation such fundamental data as free energy of formation, activity coefficients in the metal and salt phases, valence states in the salt, and characteristics of deposits are obtained. A particular run may last from one day to one week. The same cell loading of plutonium and salt may be used in several runs. During a run, the entire operation is monitored and controlled with a computer.

In order to confirm the electrochemical results, one or two chemical samples of the cadmium and salt will be taken during the test. The total weight of each sample will be less than one gram (approximately 0.1 gram.) The samples will be dissolved in acid in a gloved hood and first analyzed for plutonium by radioactive counting. Based on the radiochemical analysis, an aliquot of the chemical sample will be prepared that will contain no more than 10 microcuries. This sample will undergo chemical analysis of the non-radioactive constituents by inductively-coupled plasma (ICP) analysis. The ICP unit is installed in a glove box.

If you have any questions or require additional information, please call me at (818) 718-3461.

Very truly yours,

*R. T. Lancet*

R.T. Lancet, Director  
Nuclear Safety & Licensing

70-25  
CONTROL NO. 26225  
DATE OF DOC. Dec. 22, 1989  
DATE RCVD. Jan. 2, 1990  
FCUF  PDR   
FCAF \_\_\_\_\_ LPDR \_\_\_\_\_  
I & E REF.   
SAFEGUARDS   
FCTC  OTHER \_\_\_\_\_  
DATE 1/2/90 INITIAL SAC