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**Pacific Northwest Laboratory
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May 1973

By JN Wells 11-21-94

Verified By Jerrin Maley
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HW-29370

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**SPECIAL RE-REVIEW
FINAL DETERMINATION
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TO: W. N. Mobley
Superintendent - Process Sub-Section
MANUFACTURING DEPARTMENT

FROM: A. E. Smith
Leader - Z-Plant Process Technology
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NUCLEAR SAFETY LIMITS FOR THE POWDER
RECOVERY HOOD, ROOM 234, 234-5 BUILDING

Since the operation of the Powder Recovery Hood in Room 234 or the 234-5 Building involves the handling of plutonium and its compounds, it is necessary to establish allowable plutonium concentration limits to insure the nuclear safety aspects of the operation.

In addition to the Powder Recovery Hood there are two decontamination hoods located in Room 234. Plutonium containing solutions are routinely stored in these hoods in accordance with the nuclear safety limits defined in HW-29302, Nuclear Safety - Maximum Allowable Plutonium Mass in Hoods

SWTS, 9, 10, 17, 19, Mating Room and Decontamination Hoods Room 234.
Using the principles and information set forth in GEH-13844, Nuclear Safety

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of DP-West Operations, R. E. Schreiber to R. D. Baker, 9-9-48, and in HW-24514, Critical Mass Studies of Plutonium Solutions, F. E. Kruesi et al, 5-19-53, in the analysis of the physical arrangement of the hood, the following batch size limitations are given.

The maximum allowable mass of plutonium in the Powder Recovery Hood including the reactor vessel shall be 2000 grams of plutonium as metal, dry powder and liquid solution provided that the amount of plutonium in liquid solution shall not exceed 800 grams and further provided that the liquid solution will be analyzed before it is transferred from the reactor to RC cans whenever the mass of plutonium in the reactor could conceivably exceed 400 grams.

Approved

W. J. Ozeroff
W. J. Ozeroff - Head
Physics Unit

Sept. 18 19