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AUG 31 1966

Mr. G. P. Dix, Chief
Safety Branch, SEPO
U.S. Atomic Energy Commission
Washington, D.C. 20545

Re: Sandia Requirements for Plutonium Fuel Form Test Material

This memorandum confirms the telephone conversations between your office and mine August 29 and 30, regarding requirements for continuation of our safety investigations of the high-temperature and reentry behavior of plutonium microspheres.

We are originating an AEC form 437 request for Pu-238 and Pu-239 oxide microspheres to be supplied by Mound Laboratory as follows:

Item 1

2 Grams Plutonium-238 oxide high-fired microspheres from current production and characteristic of heat source material for the SNAP-19 and SNAP-27 generators. Material shall be supplied as follows:

1.980 Grams Plutonium-238 oxide microspheres processed, cleaned, etc., in the exact manner as material to be loaded into SNAP-19 and SNAP-27 capsules and representative of the production particle size distribution.

0.020 Grams Plutonium-238 oxide as above except that particles shall all be approximately 250 microns diameter, i.e., diameters shall range from about 225 to 300 microns.

Item 2

2 Grams Plutonium-239 oxide high-fired microspheres. It is desired that this material be characteristic of current production SNAP heat source materials as specified in Item 1.

Note: Deliver as soon as possible.

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW DOWNGRADING OR DECLASSIFICATION STAMP	
CLASSIFICATION CHANGED TO: <u>U</u>	AUTHORITY: <u>W. H. Lawrence</u>
PERSON CHANGING MARKING & DATE: <u>Emilola Selph 11/05/97</u>	RECORD ID: <u>98SN0552</u>
PERSON VERIFYING MARKING & DATE: <u>Carmela Sullivan 11/11/97</u>	DATED: <u>11/04/97</u>

Review Date: <u>10/25/72</u>	Authority: <u>ADD</u>
Name: <u>M. SKALKA</u>	Name: <u>W. H. LAWRENCE</u>
Review Date: <u>11/04/97</u>	Authority: <u>ADD</u>
Name: <u>W. H. LAWRENCE</u>	Name: <u>W. H. LAWRENCE</u>

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It is important to note that our plans for testing Pu-239 microspheres in the arc tunnel this week have been delayed because of difficulties we have encountered in selecting large (250 micron) microspheres from the batch we have available here. Also, information recently received from Mound indicates some question of the source and quality of the material which could make test results of dubious value to the SNAP-19 and SNAP-27 safety studies.

We realize from Mound that they may not immediately be able to supply Pu-239 microspheres that are representative of current production Pu-238 microsphere fuel. Although we are willing to accept the best Pu-239 material we can get immediately in the interest of continuing our reentry experiments; I think it is important that the AEC provide for the production of fuel quality Pu-239 microspheres for testing purpose. Pu-239 O₂ microspheres represent the only material which can be acknowledged as a physical and chemical analog of the Pu-238 heat source material.

Original Signed By
V. E. BLAKE

V. E. Blake, Manager
Aerospace Nuclear Safety
Department

HEHansen:9311:cc

Copy to:
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