

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

November 26, 1975

Union Carbide Corporation
Attention: Mr. Dean B. Holzgraf
Manager Nucleonics
P. O. Box 324
Tuxedo, New York 10987

Docket Nos. 50-54
✓10-687

Gentlemen:

Enclosed is IE Bulletin No. 75-07, EXOTHERMIC REACTION IN USED HEPA FILTERS, which requires action by you with regard to your NRC licensed activities.

Should you have questions regarding this Bulletin or the actions required of you, please contact this office.

Sincerely,

for R.C. O'Reilly
James P. O'Reilly
Director

Enclosure:
IE Bulletin No. 75-07

Approved by GAO, B-180225 (R0072), clearance expires 7/31/77. Approval was given under a blanket clearance specifically for identified generic problems.

bcc: ~~IE Files~~
Reactor Facilities Branch
PDR
Local PDR
REG:I Reading Room
State of Connecticut

EXOTHERMIC REACTION IN USED HEPA FILTERS

DESCRIPTION OF CIRCUMSTANCES:

Nuclear Engineering Company, Inc. (NECO), Louisville, Kentucky notified the Kerr-McGee Nuclear Corporation and IE:III on, respectively, June 30, 1975, and July 2, 1975, that they had received a waste shipment at their Beatty, Nevada burial site from the Cimarron Plutonium facility in a Super Tiger shipping container (Certificate No. 6400) on June 25, 1975. When the shipment was opened by NECO on June 26, 1975, they found evidence that an exothermic reaction had taken place inside a DOT Specification 12B fiberboard carton containing a 24" x 24" x 12" acid resistant HEPA filter. The box was thermally hot on receipt and the outside of the box was scorched. The nylon filament tape used to seal the box had melted, fusing the box to another box. Less than 450 c/m of alpha contamination was detected on the box and it was immediately buried.

This filter was identified as one serving a glovebox system in which nitric acid is used to dissolve scrap oxide materials for purification. Nitrogen oxide gases and water vapor were released through the filter. The filter had been bagged out in a 4 mil polyethylene (PE) bag, placed in the original shipping carton, packaged again in another PE bag before being placed in the DOT 12B fiberboard carton. On another occasion a similar filter package had emitted nitrogen oxide fumes while in storage at the Kerr-McGee plutonium plant.

The cause of the reaction is unknown, since most of the constituent materials in the HEPA filter do not readily react with nitric acid. The exothermic reaction may have occurred in extraneous materials placed in the package or in the packaging material itself.

ACTION TO BE TAKEN BY LICENSEES:

The following actions are requested of reprocessing plants, fuel cycle plants and major laboratory licensees:

1. Review your present or planned operations to determine if there are processes that emit corrosive gases, particularly nitrogen oxide, into ventilation systems filtered by HEPA filters.

2. Review your procedures for the handling, packaging, storing, and shipping of materials, particularly cellulose materials or other readily oxidizable substances that have been exposed to nitric acid, nitrogen oxide gases, or other oxidizing agents, to determine if appropriate precautions are being taken to preclude an exothermic reaction.
3. Report to this office, in writing within 30 days of the date of this Bulletin, the results of your review and, if appropriate, the actions you have taken or planned to correct these problems. Records of your evaluations should be maintained for examination during the next routine inspection of your facility.