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Docket 70-687 SS 396

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Docket No. 70-687
License No. SNM-639

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MEMORANDUM FOR: Leland C. Rouse, Chief
Advanced Fuel and Spent Fuel Licensing Branch
Division of Fuel Cycle and Material Safety

FROM: A. T. Clark, Acting Project Manager
Union Carbide (Tuxedo)
Advanced Fuel and Spent Fuel Licensing Branch
Division of Fuel Cycle and Material Safety

SUBJECT: RECOMMENDATION FOR APPROVAL OF LICENSEE REQUEST
FOR EXEMPTION FROM PROVISIONS OF 10 CFR § 70.24

On November 16, 1981 we received a request from the Union Carbide Corporation Medical Products Division to extend the existing exemption for criticality monitoring requirements pursuant to 10 CFR § 70.24 to the new waste storage area. A request for amendment to the license for the new waste storage area was received on August 31, 1981.

On November 20, 1981 we received a memorandum from Mr. R. G. Page, Chief of the Uranium Fuel Licensing Branch pertaining to the above request for exemption. The memorandum recommended approval of the request.

The factors which justified the staff's previous criticality monitoring exemption for the hot cells are also present for the new waste storage area. They are: 1) the heavy shielding which provides protection from an inadvertent criticality and prevents the external detection of the event, 2) the high radiation field within the shielding which prevents detection within the area, and 3) the presence of a stack monitoring system which will detect and alarm in the event of a criticality. In addition, as discussed in the Page memorandum mentioned previously, the static conditions of storage present a very low probability of such an occurrence.

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Leland C. Rouse

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On the basis of the above discussion I recommend the approval of the Union Carbide request for exemption from the requirements of 10 CFR § 70.24 for the new waste storage area.

Original signed by
A. Thomas Clark

A. Thomas Clark, Jr.
Advanced Fuel and Spent Fuel
Licensing Branch
Division of Fuel Cycle and
Material Safety

Enclosure: RGPage Memo dtd 11/20/81

Approved: Original signed by
Leland C. Rouse
Leland C. Rouse, Chief
Advanced Fuel and Spent Fuel
Licensing Branch

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NOV 20 1981

Docket No. 70-687

MEMORANDUM FOR: L. C. Rouse, Chief
Advanced Fuel and Spent Fuel
Licensing Branch

FROM: R. G. Page, Chief
Uranium Fuel Licensing Branch

SUBJECT: REVIEW OF LICENSE APPLICATION DATED
NOVEMBER 16, 1981, DOCKET NO. 70-687

I. Background

The Union Carbide Corporation (UCC), Medical Products Division, by application dated November 16, 1981, requested authorization to extend their existing exemption from the criticality monitoring requirements, pursuant to 10 CFR 70.24(a)(1), for the hot cells to the new waste storage cells.

II. Discussion

UCC has constructed a new waste storage facility for the storage of radioactive waste in 55-gallon drums containing $<350g$ ^{235}U /drum. There are 100 waste storage locations in the facility. In a previous study (Memorandum to L. C. Rouse from R. G. Page, dated October 23, 1981, subject, "Review of License Application Dated August 20, 1981, Docket No. 70-687"), it was determined the storage array is safe from a nuclear criticality safety viewpoint.

Since the storage facility is used only for the storage of waste drums ready for shipment, and it is physically impossible to bring the drums in the storage array closer together than the designed spacing (a 28-inch diameter cavity in concrete for each drum spaced on 38-inch centers), criticality is virtually impossible. Moreover, a 4 feet thick concrete shielding is provided on all accessible surfaces of the storage facility. The concrete thickness is adequate to prevent any interaction with SNM that may accidentally be stored above the storage cells. Therefore, the nuclear criticality safety controls provide an adequate margin of safety for the protection of the health and safety of the operating personnel, the public and the environment.

Issuance of the license amendment request is recommended.

W. S. Chow
for

R. G. Page, Chief
Uranium Fuel Licensing Branch
Division of Fuel Cycle and
Material Safety

Done
8/12/0611