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JUL 2 1979

DOCKET NO.: 70-1201

APPLICANT: Babcock & Wilcox Company (B&W)

FACILITY: Commercial Nuclear Fuel Plant
Lynchburg, Virginia

SUBJECT: REVIEW OF LICENSE AMENDMENT APPLICATION DATED OCTOBER 13, 1978, ITS REVISION DATED APRIL 30, 1979, AND SUPPLEMENT DATED MAY 25, 1979

REVIEWER: N. Ketzlach

Background

Babcock & Wilcox Company, Commercial Nuclear Fuel Plant (CNFP), by application dated October 13, 1978, requested authorization for the following:

1. Store SNM in a multi-tier array.

2. Revision of surface contamination action levels in several facility areas (see discussion below).

Discussion

A. Nuclear Criticality Safety

A demonstration has been provided to justify the storage of SNM in any oxide form in a four-unit high L-shaped linear array with a minimum of 28 inches center-to-center between stacks.

Independent KENO calculations utilizing the 16 group modified Hansen-Roach cross sections indicate the array has a $k_{eff} = 0.9025 + .0060$ when each container is filled with $U(4)O_2$ and water at optimum moderation within a unit. Therefore, the requested storage array is safe.

B. Radiation Safety

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The applicant requested increases in contamination control action levels in several areas of his facility. The following is a table of the current action levels and the action levels requested after discussions with the FCPF staff.

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NRC FORM 318 (9-76) NRCM 0240 ☆ U.S. GOVERNMENT PRINTING OFFICE: 1978 - 265 - 769

Area	Current	Requested
Controlled	Removable α: 7500 dpm/100 cm^2 Total α: 25,000 cpm/60 cm^2	5000 dpm/100 cm^2 50,000 dpm/50 cm^2
Change Room	Total α: 1000 cpm/60 cm^2	2,000 dpm/50 cm^2
Clean	Removable α: 50 dpm/100 cm^2 Total α: 100 cpm/60 cm^2	200 dpm/100 cm^2 500 dpm/50 cm^2

The requested action levels for removable α contamination control in the controlled and clean areas are consistent with those in the proposed Regulatory Guide 8.24, "Health Physics Surveys During Enriched Uranium-235 Processing and Fuel Fabrication", dated November 1978.

The requested action levels for total α contamination in the controlled area is 50,000 dpm/50 cm^2. This level is comparable to that authorized at other licensed facilities. The requested action levels for total α contamination in the change room and the clean areas are less than those in the "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material", dated November 1976. The requested increase in contamination level (from 1000 dpm/100 cm^2 fixed α to 1000 dpm/50 cm^2 total α) for the unrestricted use of tools and equipment is within the NRC guidelines.

At the NRC request the removable α contamination level in the lunch room and locker rooms will be kept as low as reasonably achievable compared to the current action level of 50 dpm/100 cm^2. The survey frequency in the lunch room and locker rooms has been increased from weekly to daily when is use. The surface contamination level and survey frequency are consistent with the ALARA concept.

The applicant has deleted from Section 8.4.4.1 the level for the decontamination of hands by personnel leaving a controlled area in protective clothing for the performance of non-routine or special process operations. The present decontamination level is 500 dpm/75 cm^2. The decontamination level will be replaced by levels as low as practicable applied to skin contamination control of personnel leaving any controlled area. This criterion is consistent with the ALARA concept.

At the NRC request, the applicant has reduced the allowable maximum α contamination level for the release of waste materials and equipment for unrestricted use from 25,000 dpm/100 cm^2 (fixed α) to 7,500 dpm/ 50 cm^2 (total α). This criterion is consistent with the NRC guidelines.

C. Environmental Effects

No significant environmental effect should result from the authorization of the new storage array or the requested changes in action levels for surface contamination control and survey frequency.

D. General

The amendment application, its revision and supplement were discussed with John B. Kahle, Region II (I&E) inspector of the CNFP on June 1, 1979. He foresaw no safety or environmental related problem with the requested authorization.

E. Conclusion

The nuclear criticality safety of the new SNM storage array has been established. The changes in the action levels for surface contamination control and the change in survey frequency are consistent with good radiation safety practices. Therefore, the requested changes are adequate to protect the health and safety of the operating personnel, the public, and the environment.

Issuance of the license amendment is recommended.

/s/ N. Ketzlach

Norman Ketzlach
Uranium Fuel Fabrication Section
Fuel Processing & Fabrication Branch
Division of Fuel Cycle and
Material Safety

Approved by: /s/ W. T. Crow
W. T. Crow, Section Leader

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