

OCT 17 1989

DOCKET NO: 70-1257
LICENSEE: Advanced Nuclear Fuels Corporation (ANF)
Richland, WA
SUBJECT: SAFETY EVALUATION REPORT, LICENSE AMENDMENT APPLICATION
AND SUPPLEMENT DATED JUNE 1, 1989 (SUBMITTED BY LETTERS DATED
MAY 31 AND SEPTEMBER 21, 1989), RE RELOCATION OF PLUTONIUM
CONTAMINATED WASTE AND MAINTENANCE OF CRITICALITY MONITOR ALARM
SYSTEM

Background

ANF is currently authorized to store plutonium contaminated solid waste in sealed 55-gallon drums located in the Specialty Fuels (SF) Building storage vault. In addition, ANF is required to maintain a criticality monitor alarm system in an operating condition per 10 CFR 70.24(a).

In the subject application, ANF requests authorization to relocate the drummed plutonium waste and to shutdown sections of the criticality alarm system when performing system maintenance. By letter dated September 11, 1989, the staff requested additional information. Accordingly, by letter dated September 21, 1989, ANF submitted the supplement dated June 1, 1989.

Discussion

Relocation of Plutonium Waste

In the existing license, ANF is authorized to store the drummed plutonium waste in the SF Building storage vault. Air passing over the drums is exhausted out of the vault through a HEPA filter. A continuous air sample upstream of the HEPA filter is analyzed weekly for plutonium. Effluent air from the vault continues to pass through two stages of HEPA filtration in the building exhaust system. Visual inspections and smear surveys are conducted on a semi-annual basis. Any evidence of plutonium alpha activity on the samples requires an investigation and corrective action. In the subject application, ANF proposes to relocate the drummed plutonium waste in the autoclave pit located in the southwest corner of the SF Building Room 162. The pit is a below grade room with dimensions of 12' wide, 20' long, and 20' 4.5" deep. The walls and floor are constructed of reinforced concrete and are keyed and sealed with a continuous water stop. The pit is covered with floor grating and overlaid with sheet steel. A hinged door section and vertical ladders provide access and egress to and from the pit.

The drummed waste will be stored on steel grating to support the drums off the concrete floor and on a mezzanine of steel grating. The existing ventilation filtration, sampling, inspections, and surveys discussed above will be performed at the new location. The pit also contains a sump for liquid collection which is monitored by a liquid level alarm. Any liquid collecting in the sump will be removed by a manually activated sump pump which discharges to a waste retention tank.

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ANF states that the pit will not be used for the storage of materials other than the plutonium waste drums. ANF adds that corrosive liquids are neither stored or used in the area (Room 162) nor routinely transported through the area. The staff agrees with ANF's conclusion that spillage of corrosive liquids into the pit is unlikely. The staff also finds that the proposed location and controls are adequate to detect and mitigate a release of plutonium from the stored waste drums. Furthermore, because the quantity of plutonium will remain unchanged and is scattered in several drums, the staff concludes that the quantity is insufficient to form a critical mass. Accordingly, criticality safety criteria for plutonium is not needed in the license.

Exemption to 10 CFR 70.24(a)

In new Section 1.6.9, ANF requests authorization to shutdown sections of the criticality monitor alarm system when performing system maintenance. During the maintenance activities, all material movement and processing operations in the affected areas will be shutdown. Health physics personnel will conduct surveys in affected areas during the shutdowns. The staff finds that the shutdown of operations minimizes the risk of accidental criticality. Area surveys provide a reasonable alternate measure during the alarm system shutdown. Therefore, to clearly state the exemption in the license, the staff recommends the following revision to Condition 11:

The licensee is hereby granted the exemptions and special authorizations in Sections 1.6.1 through 1.6.9, Chapter 1, of the application.

Conclusion/Recommendation

The staff concludes that the proposed amendment to the license will have no adverse effect on public health and safety or on the environment. Approval of the application, as supplemented, is recommended subject to the staff's revision of Condition 11.

The Region V Principal Inspector has no objection to this proposed action.

Original Signed By:

W. Scott Pennington
Uranium Fuel Section
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

Original Signed By:

Approved by: George H. Bidinger, Section Leader

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