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ETS-W-96-524

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Here is a copy for you.
The Joel Williams
539-1728

January 5, 1995

Mr. Steve E. Killoy
Regulatory Compliance
Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

Dear Mr. Killoy:

CERTIFICATION OF THE 221-B BUILDING AS A DANGEROUS WASTE CONTAINMENT BUILDING

The B-plant Dangerous Waste Permit Application, dated September 30, 1994 states that the 221-B building will be considered a containment building for the storage of dangerous wastes. Thus 221-B building is subject to the requirements of WAC 173-303-695 and 40 Code of Federal Regulations (CFR), Part 265, Subpart DD.

Owners of containment buildings must obtain certification that the containment building design meets the requirements of 40 CFR 265.1101(a), (b), and (c). This certification shall be made by a qualified registered professional engineer. The purpose of this letter is to provide that certification.

The 221-B building is being used as a multiple purpose facility with more than one regulatory agency and sets of criteria. This letter addresses only the EPA requirements of CFR 40, Part 265, Subpart DD containment buildings. U. S. Department of Energy (DOE) requirements and loadings are not being addressed in this letter.

The 221-B building at the B-plant facility was designed and built to operate safely as a chemical and radioactive materials processing facility. The building is a long canyon structure constructed of thick, lightly-reinforced concrete load-bearing members that provide both strength and radiation shielding. Mechanical systems currently in place are designed to collect HVAC, liquid, and solid wastes for proper disposal.

The dangerous solid mixed waste consists of radioactive contaminated process equipment and jumpers (or isolated components thereof) containing lead used as weights, counterweights, or radiation shielding. This waste is being stored on the canyon deck level and in various cells of the 221-B building.

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Section 1101 of 40 CFR 265, Subpart DD specifies the containment building design and operating standards. 40 CFR 265.1101(a) provides the design standards for the containments building; 40 CFR 265.1101(b) provides additional requirements when free liquids are present; and 40 CFR 265.1101(c) provides operating standards. This letter certifies how the 221-B building meets the design standards.

The requirements of 40 CFR 265.1101(a) provide for the design of the dangerous-waste containment buildings. These basic requirements include complete enclosure to prevent exposure to the elements and to assure containment of managed wastes, capability to withstand all operating loads, materials storage loads, climatic conditions without collapse or failure, and construction from waste compatible materials.

The 221-B building originally was designed for processing radioactive materials which requires a very robust containment type structure. The 221-B building was designed and constructed in the 1940's. No design calculations could be located. The 221-B building was evaluated for earthquake loads in 1989 as documented in WHC-SD-WM-SA-005. The building was found to have sufficient structural strength to prevent collapse on other failure. The 221-B building is enclosed from the elements. The concrete internal surfaces are painted to resist chemical attack. Per WHC-SD-WM-SA-005, a non-destructive evaluation of the concrete condition and strength revealed that the structure is in excellent condition. Because it was designed as a containment type structure and because the quantity of waste is small such that it does not add significant inertial loading to the building, the 221-B building is more than adequate to meet the 40 CFR 265.1101(a) requirements.

40 CFR 265.1101(b) requires the free liquids be contained within the facility. The method detailed in 40 CFR 265.1101(b) lists a primary barrier, a collection system, and a secondary leak detection and containment system to protect personnel and the environment. Because the dangerous waste stored in the 221-B building does not contain free liquids, the requirements of this paragraph are not applicable.

40 CFR 265.1101(c) provides for operational controls and design requirements. The operational control, including maintenance items are the responsibility of the owner or operator. Design requirements listed in 40 CFR 265.1101(c) include measures to prevent tracking of hazardous materials from the storage site, and controlling airborne emissions.

Tracking of hazardous materials is controlled by limiting personnel access to the storage area. Personnel access to the 221-B building canyon area is permitted only through radiation control areas with personnel protective clothing and step-off pads.

Airborne emission is controlled by exhausting canyon air through high-efficiency particulate air filters; and by having airflow directed from areas of lower contamination to areas of higher contamination by establishing successively lower air pressure in areas of higher contamination level.

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The 221-B building is being used for multiple purposes, one of which is confinement of a stored dangerous waste. This letter certified the 221-B building according to EPA requirements, as a dangerous waste containment facility in addition to its other uses. The as-designed and inplace facility and systems meet the 40 CFR 265, Subpart DD, requirements as described herein. For these reasons I certify that this building meets these requirements.

Sincerely



G. R. Wagenblast
Senior-Principal Engineer

GRW:mam

cc: R. E. Tiller

