

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-0355-D-105-E

DATE: October 1, 1996

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DEVICE TYPE: Smoke Detector

MODEL: SIH-24, AIB-10, AI\_ Series

MANUFACTURER/DISTRIBUTOR: Hochiki America Corporation  
5415 Industrial Drive  
Huntington Beach, CA 92649

SEALED SOURCE MODEL DESIGNATION: NRD Model A-001  
Amersham Model AMM1001

ISOTOPE:

Americium-241

MAXIMUM ACTIVITY:

1.0 microcurie (37.0 kBq)

LEAK TEST FREQUENCY: Not required

PRINCIPAL USE: (P) Ion Generator, Smoke Detectors

CUSTOM DEVICE: \_\_\_\_\_ YES \_\_\_\_\_ X \_\_\_\_\_ NO

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DEVICE TYPE: Smoke Detector

DESCRIPTION:

The SIH-24 and AIB-10 smoke detectors are industrial type detectors connected to and operated from a central fire control unit. These detectors are designed such that the radioactive material is not readily accessible to installers or users. The SIH-24 and AIB-10 use the same ion chamber. The only physical difference between the SIH-24 and the AIB-10 is in the overall size of the detectors, and that the SIH-24 has a small LED. The SIH-24 is approximately 4" (10 cm) in diameter and 1.5" (3.8 cm) in height. The AIB-10 is approximately 3" (7.5 cm) in diameter and 1.75" (4.4 cm) in height.

The AI\_ Series smoke detectors are also industrial type detectors that are connected to and operated from a central fire control unit. The series includes the models AIE and AIC detectors. The basic ion chamber design and construction for the two models within the series is essentially similar. Cosmetic differences, including different outer cases, account for slight dimensional differences. The following is a comparison of the ion chamber construction:

<u>Description</u>	<u>AIE</u>	<u>AIC</u>
Isotope/Activity	Am-214, 1.0 $\mu$ Ci	Am-241, 0.98 $\mu$ Ci
Source Holder Diameter	0.44" (11.2 mm)	0.44" (11.2 mm)
Inner Electrode Length	0.71" (18 mm)	0.35" (9 mm)
Intermediate Electrode Diameter	1.65" (42 mm)	1.46" (37 mm)
Outer Electrode Diameter	1.97" (50 mm)	1.73" (44 mm)

Hochiki distributes these detectors under different trade names, and includes the different product codes on the point of sale labeling.

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REFERENCES:

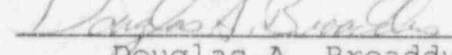
The following supporting documents for the smoke detector models SIH-24, AIB-10 and AI Series are hereby incorporated by reference and are made a part of this registry document.

- Hochiki America Corporation's applications dated August 22, 1995, and June 7, 1996, with enclosures thereto.
- Hochiki America Corporation's facsimiles dated December 7, 1994, June 18, 1996, July 1, 1996, July 2, 1996, August 14, 1996, August 19, 1996, September 19, 1996, and September 27, 1996, with enclosures thereto.
- Hochiki America Corporation's letters dated November 24, 1987, November 25, 1989, June 25, 1990, September 5, 1990, June 2, 1994, November 30, 1994, and June 7, 1996, with enclosures thereto.
- NRD Incorporated's telefax dated March 26, 1991, with enclosures thereto.

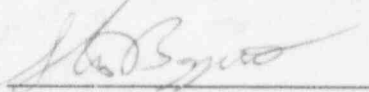
ISSUING AGENCY:

U.S. Nuclear Regulatory Commission

Date: October 1, 1996

Reviewer:   
Douglas A. Broadus

Date: October 1, 1996

Concurrence:   
Steven L. Baggett