REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO: NR-355-D-103-E DATE: JUL 2 2 1983 PAGE 1 OF 4

DEVICE TYPE: Smoke Detector

MODEL: SIF-24

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

MANUFACTURER: Hochiki Corporation
10-43 Kamiosoki 2-chome
Shinagawa-ku
Tokoyo, Japan

SEALED SOURCE MODEL DESIGNATION: Amersham Corporation Model AMM-1001

ISOTOPE: Americium-241 MAXIMUM ACTIVITY: 1 microcurie

LEAK TEST FREQUENCY: Not Required

PRINCIPAL USE: (P) Ion Generators, Smoke Detectors

CUSTOM DEVICE: _____ YES __X__ NO

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PDR FOIA
HAMMITT84-74 PDR

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DEVICE TYPE: Smoke Detector

DESCRIPTION:

The Model SIF-24 smoke detector is identical to the approved Model PID-C2 with the only difference being it uses 1.0 microcuries of Americium-241 rather than 4.5 microcuries as in the PID-C2.

LABELING:

The device and point of sale package are labeled in accordance with the requirements of Section 32.29, 10 CFR 32.

DIAGRAM:

See Attachment 1

CONDITIONS OF NORMAL USE:

The product is an industrial ionization type combustion detector which is used for the protection of life and property from fires by the detection of airborne particulates. The detectors will normally be mounted on the ceiling of areas where high value content are located such as computer facilities, warehouses, or dormitories when the protection of life is the prime consideration. Because of the high cost of the detection, only minor use in the private dwelling is expected. The manufacturer assumes the useful life of the detector to be 10 years.

PROTOTYPE TESTING:

The Radiochemical Center in England submitted the foils to the testing requirements of ANS 542 and to chemical corrosion tests. Hochiki Corporation heated one detector to 1100°C. All radioactive material was contained in the ash residue. They found no contamination of the furnace walls. Additionally, the detector was subjected to vibration tests, shock tests and operational tests.

EXTERNAL RADIATION LEVELS:

Hochiki-America Corporation reports the following measured dose rates:

Distance	
5 cm	0.00089 mrad/hr = .89 micro R/hr
25 cm	0.000046 mrad/hr = .04 micro R/hr

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DEVICE TYPE: Smoke Detector

QUALITY ASSURANCE AND CONTROL:

Hochiki-America Corporation (HAC) keeps records of all testing that is done on the detector by Hochiki Corporation in Japan. HAC also keeps records on where each unit is shipped and to whom.

Hochiki Corporation wipe tests each unit, performs inspections at each assembly station, and performs a final operational test on each unit for 10-30 days and any UL required testing. If any unit fails a test, it is not shipped out until the problem is corrected.

LIMITATIONS AND OTHER CONSIDERATIONS OF USE:

- The device shall be distributed only to persons who are exempt from the requirements for a license, pursuant to Section 30.20, 10 CFR 20.
- This registration sheet and the information contained within the references shall not be changed or transferred without the written consent of the NRC.

SAFETY ANALYSIS SUMMARY:

Based on our review of the information and test data cited below, that this device is identical, with the exception of the reduced activity, to a detector, Model PID-C that was deemed acceptable for licensing purposes in December 1978, we conclude that Hochiki-America Corporation has submitted sufficient information relating to the design, manufacture, prototype testing, quality control, and conditions of handling, storage, use and disposal of their gas and aerosol detector to demonstrate that the product would meet the safety criteria set forth in Section 32.26 of 10 CFR Part 32.

It is further concluded from our review that the external radiation dose or the dose commitment resulting from the intake of radioactive material from the detector will not exceed the doses specified in Column I of the table in Section 32.28 of 10 CFR Part 32, under conditions of normal use, handling, storage, and disposal. Finally, it is concluded that in use and disposal of a single exempt unit and in handling and storage of the quantities of exempt units likely to accumulate in one location during marketing, distribution, installation, and servicing of the product, the probability is low that the containment, shielding, or other safety features of the product would fall under such circumstances that a person would receive an external radiation dose or dose commitment in excess of the dose to the appropriate organ as specified in Column II of the table in Section 32.28 and the probability is negligible that a person would receive an external radiation dose or dose commitment in excess of the dose to the appropriate organ as specified in Column III of the table in Section 32.28.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO: NR-355-D-103-E DATE: JUL 2 2 1983 PAGE 4 OF 4

DEVICE TYPE: Smoke Detector

REFERENCES:

The following supporting documents for the Model SIF-24 smoke detector are hereby incorporated by reference and are made a part of this registry document.

o Hochiki-America Corporation License No. 04-14880-1E and letter dated May 19, 1983, with enclosures thereto.

ISSUING AGENCY:

U.S. Nuclear Regulatory Commission

Date: JUL 2 2 1983 Reviewer: _____

Date: JUL 2 2 1983 Concurrence: _____

NO: NR-355-D-103-E

DATE: JUL 2 2 1983

SIF-24
SMOKE DETECTOR

NO.	Name
1.	Enclosure 2
2.	Contact Blade
3.	Rivet
4.	Shield Case
5.	Packing
6.	Spring
7.	Pin(P.S.T)
8.	Terminal
9.	Insulation Plate
10.	Inner Electrode
11.	Inner Electrode
12.	Radioactive Source
13.	Intermediate Electrode
14.	Outer Electrode
15.	Screen
16.	Enclosure 1
17.	Rivet
18.	Screw
19.	Screw
20.	Nut
21.	Screw
22.	P.C.Board
23.	Plate
24.	Dampproof Packing
25.	Plain Washers
27.	Nut
28.	Locking Screw