REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO: NR-233-D-101-E DATE: MAR 5 1983

DEVICE TYPE: Computer Systems Containing a Smoke Detector Unit

MODEL: Part # 52524694

MANUFACTURER/DISTRIBUTOR: Control Data Corporation
4201 Lexington Avenue, North
Arden Hills, MN

MANUFACTURER/DISTRIBUTOR:

SEALED SOURCE MODEL DESIGNATION: Honeywell TC 100C Smoke Detector Unit

ISOTOPE: Americium-241 MAXIMUM ACTIVITY: 1 microcurie/unit

LEAK TEST FREQUENCY: Not Required

PRINCIPAL USE: (P) Ion Generators, Smoke Detectors

CUSTOM DEVICE: ___ YES __X__ NO

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PDR FOIA
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DEVICE TYPE: Computer Systems Containing a Smoke Detector Unit

DESCRIPTION:

The Honeywell Model TC 100C smoke detector electronics are removed from its plastic case and are then attached to a Control Data Corporation printed circuit board. This assembly is then mounted into a metal box and covered with a expanded metal cage. The box is then mounted into the computer cabinet near the exhaust fan. The access panels on the computer cabinet are held in place by screws that require a special tool to remove them. Thus, further restricting access to the source assembly.

LABELING:

The assembly is labeled with the words "Caution-Radioactive Material:, 1 microcurie Americium-241. Additionally, each completed unit is serialized, thereby allowing its location of customer be traced

DIAGRAM:

See Attachment 1

CONDITIONS OF NORMAL USE:

Will be placed in a computer main frame cabinet to turn off its electric power in the event a printed circuit board should burn.

PROTOTYPE TESTING:

The Honeywell smoke detector is presently distributed and tested under NRC License No. 12-12267-03E and manufactured in accordance with Section 32.26, 10 CFR 32. For a complete description of the prototype testing performed on the detector you should consult the Honeywell license. Additionally, the Control Data Corporation had the circuit board dropped 20 times from a height of eight feet onto an unyielding surface and showed no signs of lose of containment integrity.

EXTERNAL RADIATION LEVELS:

See Attachments 2, 3, 4

QUALITY ASSURANCE AND CONTROL:

Control Data employees carefully remove the detector assembly from the plastic housing and discard the plastic housing.

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QUALITY ASSURANCE AND CONTROL (Cont'd):

The employee inspects the detector assembly, including the mounts which are used to attach the detector assembly to the Control Data detector housing. After mounting the detectors, two additional procedures are followed:

1. The mounts are visually inspected, and then the system is energized to confirm it as satisfactorily operating.

2. The assembly, after being installed in a computer is energized and tested to confirm that it is properly operating.

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

- This device is designed, manufactured and tested for incorporation into computer systems for the purpose of shutting the system down in the event a circuit board should burn and is intended for exempt distribution pursuant to Section 30.20, 10 CFR 30.

- The manufacturer states that this device has been designed, manufactured, and tested to meet the requirements of Section 32.26, 10 CFR 32.

SAFETY ANALYSIS SUMMARY:

Honeywell manufactures, distributes, and tests the Model TC 100C smoke detector under their License No. 12-12267-03E and in accordance with Section 32.26, 10 CFR 32. Control Data Corporation is purchasing these units and removing the ion chamber/circuit board component. They then place the component into a metal box of their design and cover the entire component with an expanded metal cover. Since Control Data Corporation modified the Honeywell smoke detector by adding an additional protective housing and this modification also meets the requirements of Section 32.27(a), (b), (c), 10 CFR 32. We conclude that the modified smoke detector, TC 100C, is acceptable for licensing purposes.

REFERENCES:

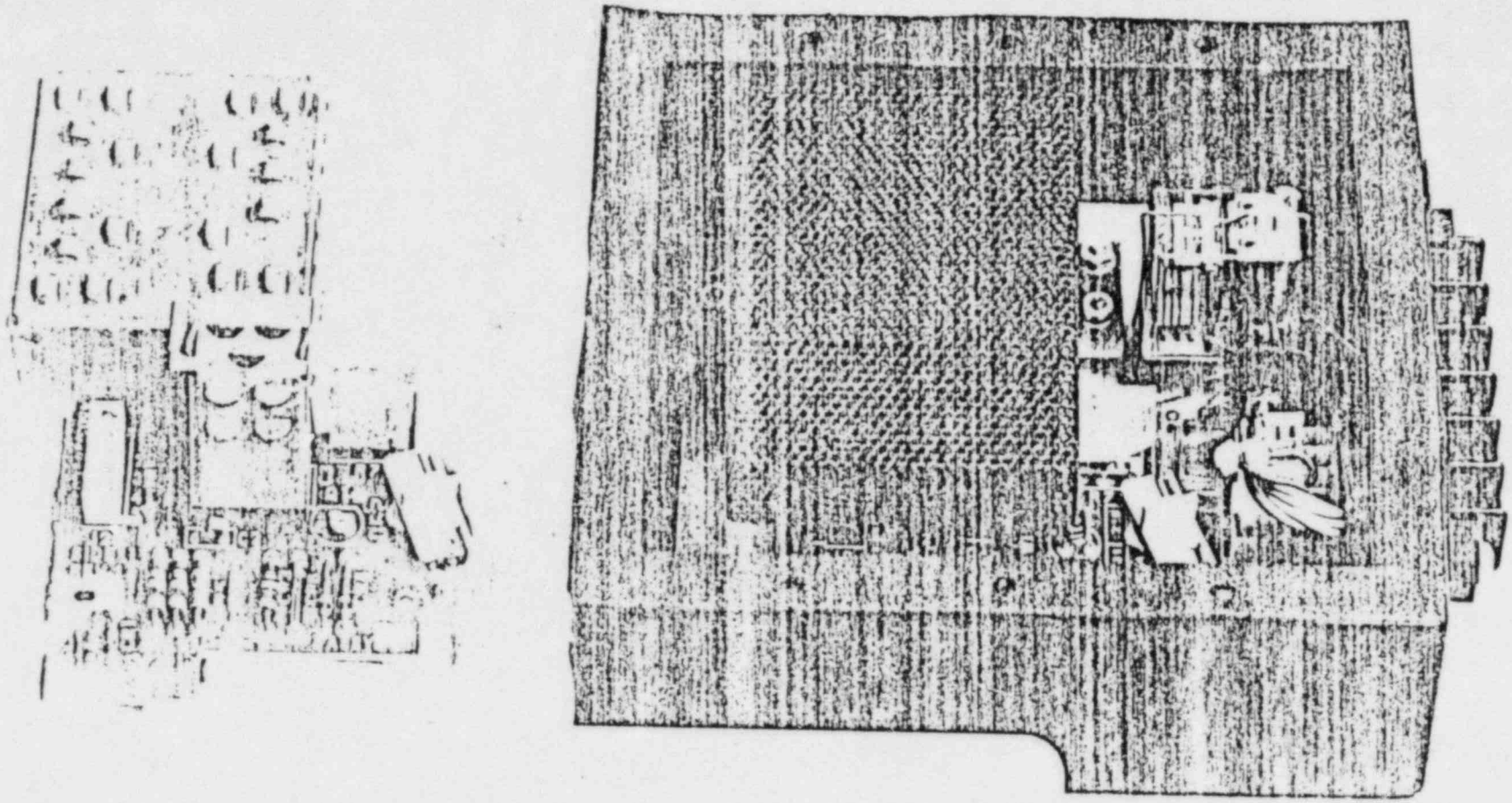
The following supporting documents for the device model TC 100C are hereby incorporated by reference and are made a part of this registry document:

- Control Data Corporation application dated November 12, 1982 and letter dated February 11, 1983

ISSUING AGENCY: U.S. Nuclear Regulatory Commission

Date: MAR 8 1983 Reviewer: _____

Date: _____ Concurrence: Earl B Wright



The Honeywell detector is on the left. The CDC detector housing, on the right, is photographed with the Honeywell detector.

External Radiation Levels

Position	Exposure Rate (μR/h) Surface	5cm	25cm
Front Center	0.01	<0.01	<0.01
Front over source	0.32	0.07	<0.01
Back center	0.05	<0.01	<0.01
Back over source	1.22	0.10	0.004**
Side 1 (nearest source)	0.104	0.06	<0.01
Side 2 (nearest source)	0.05	0.06	<0.01
Side 3 (center)	<0.01	<0.01	<0.01
Side 4 (center)	*	<0.01	<0.01

* Measurement not taken due to protrusions on the device which could damage Ge (Li) detector.

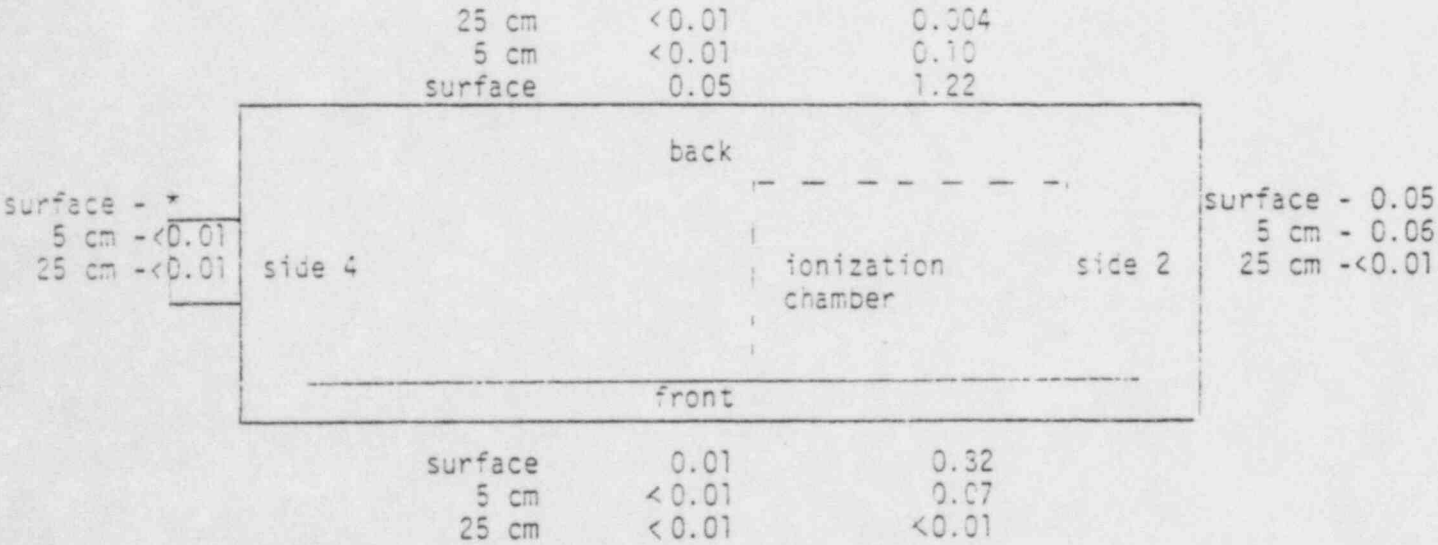
** Not significant at 95% confidence level.

Attachment 2

NO: MR-233-D-101-E DATE: MAR 8 1983

Control Data Part #52524694

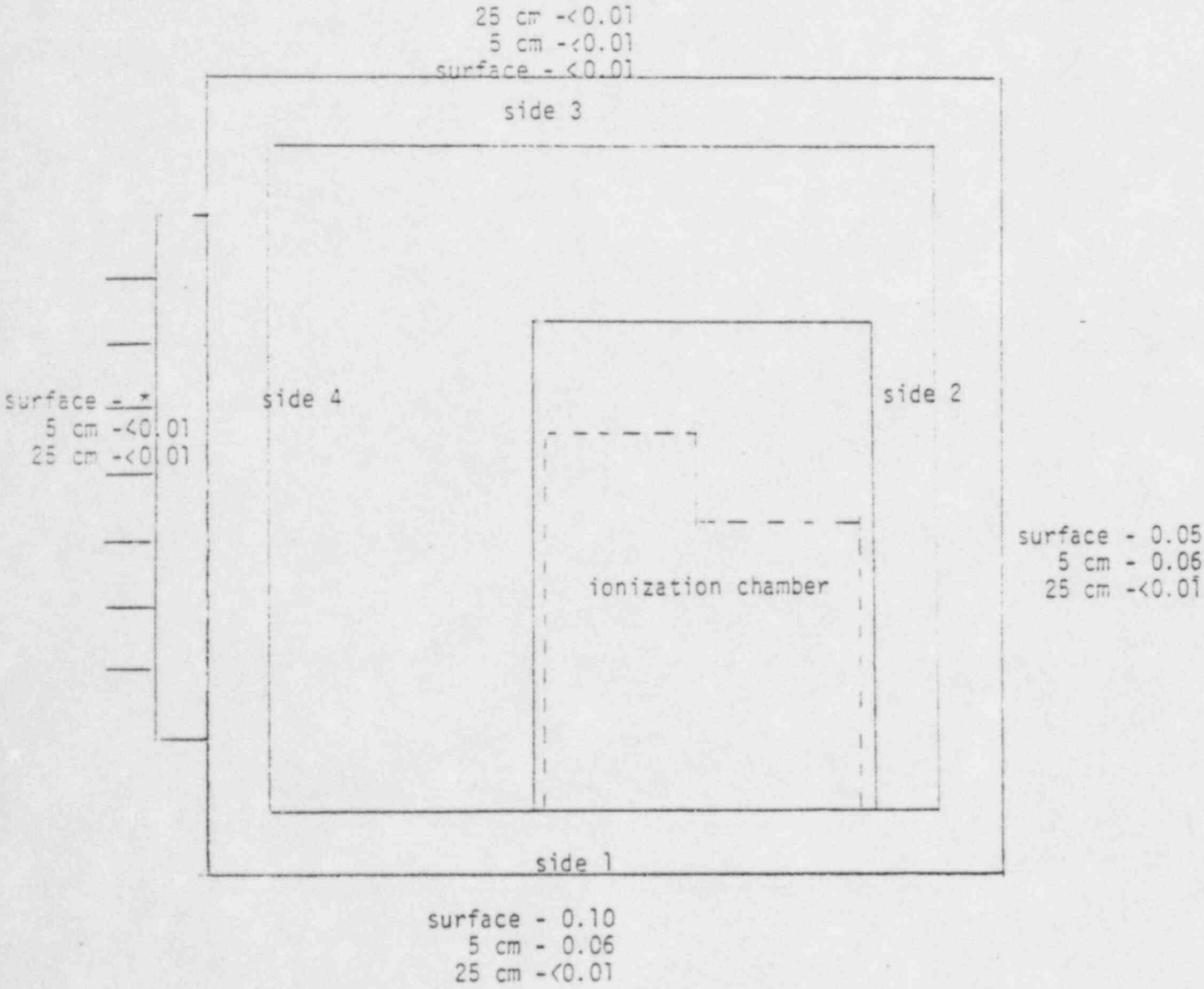
External Radiation Levels (uR/h)



*Measurement not taken due to protrusion which could damage Ge(Li) detector.

Attachment 3

External Radiation Levels (uR/h)



*Measurement not taken due to protrusion which could damage Ge(Li) detector