

Pyrotronics

8 Ridgedale Avenue, Cedar Knolls, New Jersey 07927 Cable Address: Baker Pyro (201) 267-1300

Applicant . . Check No ... Amount Pas Ca Type of Four Jamens March 24, 1981 Date Chack Lagid Received By .

RECEIVED BY FEET Date Orig. To Action Compl.

U.S. Nuclear Regulatory Commission Radioisotopes Licensing Branch Washington, D.C.

Attention: Mr. James A. Jones

References: Pyrotronics. Inc. License No.

29-08864-03 29-08864-04E 29-19100-01E

Dear Mr. Jones:

Pyrotronics, Inc. wishes to add to the above captioned licenses the following new models, DU-3 and DC-1. These units will be manufactured by Pyrotronics Canada, Ltd., Markham, Canada and distributed under the Pyrotronics name in the United States. The Canadian plant is licensed under number 5-2587-82B of the Canadian Atomic Energy Control board.

Each of these models employ the same ionization chamber (single source) as used in many of our other detectors, typically the P5 series and the FB-1 which is listed under license number 29-19100-01E (see attachment #1). From the enclosed literature, you can see the style of the exterior housing is the same as the P5 series of detectors. (Attachment #2).

These models function as follows:

Model DU-3, basic ionization (0.8uC Americium 241 source) type smoke detector, powered by either 120Vac, 24Vdc or 18Vac. This unit contains SPDT and SPST switch contacts and an internal horn for local annunciation. (See Attachment #3)

Model DC-1, combination type smoke detector using an ionization (0.8uC Americium 241 source) and photoelectric chambers, powered from a 21Vdc source. The unit contains a horn to provide local annunciation and an output for remote sensing or annunciation. (See Attachment #4).

Also enclosed are the identification labels (see Attachment #5) for each of the above units.

Please remove from license number 29-19100-01E the 14 Ridgedale Avenue, Cedar Knolls New Jersev address. This building is no longer in use by Pyrotronics.

8104230522 921109 MIS92-414 PDR COPIES SEIVE SO OFF. OF INSPECTION AND ENFORCEME!

James A. Jones Page 2 3/24/81

Please revise all referenced licenses noting Ralph J. Hiltebrand and Irving L. Ellner as Radiation Protection Officers.

Attachment #6 will provide you with an up-dated list noting branch managers that are responsible for the storage of ionization type smoke detectors, and their location.

Enclosed is a check for \$230 to cover the amendment fee.

If any further information is needed, please contact me.

Very truly yours,

Ralph J. Hiltebrand

Radiation Protection Officer

RJH: amf

Attachments

P.S. Have not received the renewal for License #29-08864-04E as of this date. License expired 7/31/79.

FORM NAC 374A (5.76)

U. S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Supplementary Sheet

Page 2 of 2 Pages

License Number 29-19100-01E

Docket or 10-1

10-17909-01E

CORRECTED COPY

CONDITIONS

10. Each smoke detector device distributed pursuant to this license shall contain not more than the amount of americium 241 listed in the following table:

Maximum Quantity per Device Device Model 0.8 microcurie FRU - 1 0.8 microcurie FRU - IL 0.8 microcurie RI - X 0.8 microcurie FB - 1 1.6 microcuries FRU - 2 1.6 microcuries FRU - 2L 1.6 microcuries R - 2X 1.6 microcuries R - 2XB1.6 microcuries DU - 1A 1.6 microcuries DU - 2A 0.8 microcurie FBL - 3 0.8 microcurie Wells Fargo Model P5B - 10 0.8 microcurie Wells Fargo Model P5A - 20 0.8 microcurie Wells Fargo Model P5C - 30 0.8 microcurie Wells Fargo Model P5F

- 11. This license does not authorize possession or use of licensed material.
- 12. Each device distributed under the license shall be manufactured, tested, and labeled in accordance with the statements, representations and procedures contained in applications dated July 7, 1976 and January 25, 1977, and letters dated March 19, 1976, April 27, 1976, August 30, 1976, November 23, 1976, February 8, 1977, February 14, 1977, April 4, 1977, April 6, 1977, June 5, 1978, September 28, 1978, January 17, 1979, March 19, 1979, April 17, 1979, and May 24, 1979.
- 13. The licensee shall file an annual report as specified in Section 32.29(c), 10 CFR Part 32.

For The U. S. Nuclear Regulatory Commission

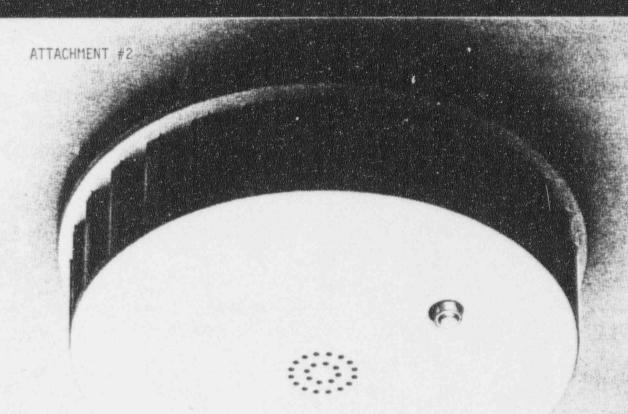
Rathica I Situation

Material Licensing Branch

Division of Fuel Cycle and Material Satety Washington, D.C. 20555

AUG 0 8 1979

WELLS FARGO EXTRA PROTECTION FIRE & SMOKE DETECTORS



MODEL # P5B-10



EXTRA PROTECTION MODEL

FEATURES

Our basic unit. For your budgetminded customers who want a really reliable detector. An exceptionally well-made unit. Our ionization chamber design is extra dependable. It can detect danger of fire at the <u>earliest</u> possible stage. Even before smoke. Easy to put up. Operated by easily replaced, standard alkaline battery. Ultra-stable, broad spectrum sensitivity, ionization detector
Deluxe designer housing with wide vent openings
Easy access mounting takes only two screws
Test button checks both sensing chamber and alarm circuitry
Reliable integrated circuit design

Standard 9-volt power source

Unique, extra-dependable low-battery test circuit 30-day low-battery warning signal 85 db horn

From the company that's been protecting government and industry from fire for over 25 years.



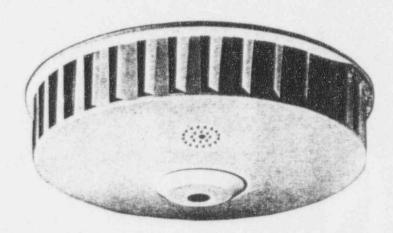
Wells Fargo Protection Systems A Baker Industries Company 8 Ridgedale Ave. Cedar Knolls. N.J. 07927

CATALOG NUMBER

6112

Engineer and Architect Specifications

ATTACHMENT #3





Features

- Choice of Operating Voltages
- · 85 DB Alarm
- . Power-On LED and Alarm Indicator
- · Alarm and Trouble Relays
- · Concealed Test Feature
- . UL Listed

Introduction

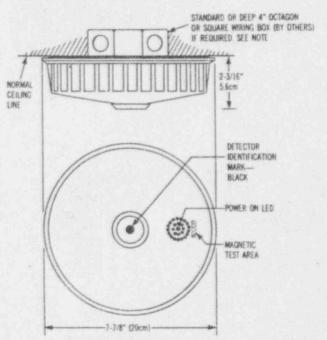
The Pyrotronics Model DU-3 is an ionization type smoke and fire detector. Powered by 120 Vac, 24 Vdc or 18 Vac, it affords significant life safety and property protection advantages, especially for residential, institutional, and light commercial occupancies.

The Model DU-3 is UL listed as a single station detector which can also be used in conjunction with supplementary devices or tied in to an approved fire alarm system.

Description

The Pyrotronics Model DU-3 will respond to a broad spectrum of fire, including the earliest incipient stage before there is visible smoke or flame or noticeable heat at the detector. The ionization chamber contains two charged plates and an alpha source that ionizes the air molecules. When products of combustion enter the chamber, they impede the flow of ions. This reduces the flow of current between the plates and causes a voltage shift that triggers the alarm through a field

Mounting Data



NOTE: BOX DEPTH DETERMINED BY QUANTITY OF CONDUCTORS USED. REFER TO NATIONAL ELECTRICAL CODE



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Pyrofronics 160 PROTECTIVE SYSTEMS

effect transistor (FET). A loud 85 decibel aiarm horn is then sounded to warn occupants to leave. The alarm horn will continue to sound as long as the combustion products are present. When the chamber is cleared the unit will automatically reset.

The unit contains a set of SPDT and SPST alarm operated contacts for the control of supplementary external equipment such as an additional audible device, supplementary fans, or for connection to an approved alarm system or releasing device. A SPST trouble operated supervisory relay is also provided.

The DU-3 is equipped with a "Power On" LED located on the face of the unit. When the unit is in an alarm condition the horn will sound and the Power LED will go out until the unit automatically resets.

To insure that the detector is always capable of performing its vital function, a built-in test feature has been provided. When a magnet is applied to the area between the LED and outside rim of the detector case, a hidden reed switch is activated, which will initiate a functional alarm condition. This tests the ionization chamber, the electronic circuitry, and the horn.

Application Data

The DU-3 is essentially a life safety device for use in such occupancies as hotels, motels, dormitories, apartment buildings, etc. Many of these residential type occupancies have manual fire alarm systems already installed in corridors, hallways, and staircases. The DU-3 offers the desirable capability of extending the existing manual alarm system so that in the event of a fire, the manual alarm system will be automatically actuated. This system, in turn, will then respond with its own alarming devices, such as local and remote audibles throughout the building, alerting municipal fire headquarters, etc.

In this sequence, the DU-3 offers superior protection in that significant time is saved in alerting personnel that a fire condition exists. The chances of containment and extin-

guishment are greatly increa, d and the possibility of extensive, wide area fire damage is minimized.

An alternative application would be to connect the detector to a compatible, listed releasing device control unit to release smoke barrier doors, shut down operating equipment or actuate similar fire protective sequences.

Architect's Specifications

The fire detector unit shall be a Pyrotronics Model DU-3. It shall operate on the ionization principle, activated by the presence of combustion products, and shall be listed by Underwriters Laboratories Inc. The detector shall contain a prewired plug-in connector to afford easy connection to the snapluck detector mounting plate and system wiring.

The detector shall contain SPDT and SPST alarm operated contacts rated 120 Vac or 24 Vdc, 3 amps. and a SPST supervisory relay with contacts rated 120 Vac, 2 amps.

The amplifier switching circuit in the detector shall be entirely solid-state, and shall operate with field selectable input voltages of 120 Vac, 24 Vdc or 18 Vac.

The detector unit shall contain a concealed test feature which utilizes a magnetically operated reed switch to functionally test the ionization chambe all electronic circuitry and the built-in alarm horn. An avaible only test feature shall not be considered equal.

Electrical Information

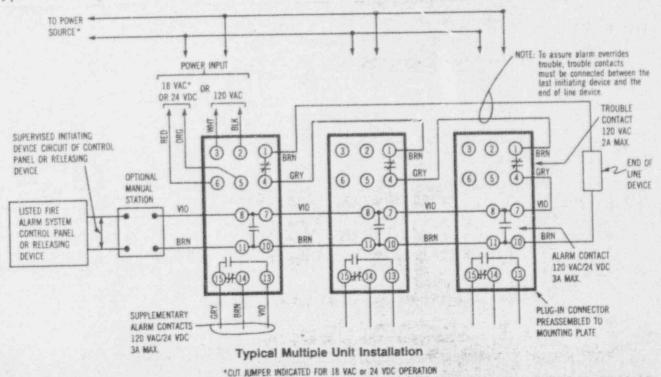
Power Requirements: 120 Vac — .1 amp. max. 18 Vac — .2 amp. max.

24 Vdc — .1 amp. max.

Ordering Information

Model No.	Description	Shippi ibs.	ng Wt. Kg.
DU-3	Fire Detector Unit	1.5	.7

Typical Wiring



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Pyrotronics

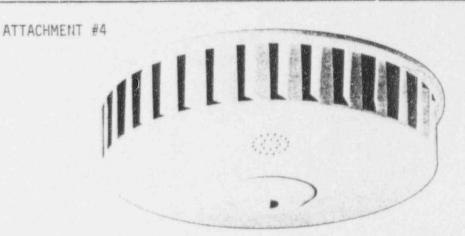
Early Warning
Fire Detection and Alarm Systems

Photoelectronic/Ionization Fire Detector Model DC-1

CATALOG NUMBER

6115

Engineer and Architect Specifications



Features

- . LED Alarm Indicator
- · Concealed Test Feature
- · Plug-in Design
- · Superior Sensitivity & Stability
- . Two Wire Installation System Operated
- Wide Range Detection Capability

Introduction

The DC-1 combines two advanced detection methods into one: a new photoelectronic detector and Pyrotronics' proven ionization detector. This combination detector offers the widest range of detection capabilities currently available for any type of anticipated fire condition.

Technical Description

The Model DC-1 incorporates both a photoelectronic chamber and an ionization chamber in one detector. By using two different chamber detection methods, the DC-1 offers superior sensitivity over the entire combustion products spectrum.

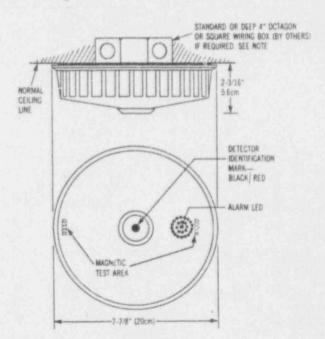
The photoelectronic chamber uses a solid state light emitting diode (LED) and a light sensing photodiode (PD) within a sensing chamber. Under normal conditions, the LED is pulsed once every twelve seconds to provide a flash of light within the sensing chamber. When smoke enters the chamber, the pulse light is scattered or reflected in sufficient quantity to be "seen" by the photodiode.

After the first sighting of smoke by the photodiode, the detector increases the time frequency of light pulses to one pulse every second and a logic circuit is activated to count the light pulses. If the logic circuit verifies the continued existence of smoke within the chamber after two consecutive pulses, the detector's alarm circuit is activated.

The ionization chamber contains two charged plates and a low-level alpha source which ionizes the air molecules. When products of combustion enter the chamber, they impede the flow of ions. This reduces the flow of current between the plates and causes a voltage shift that triggers the alarm circuit through a field effect transistor (FET).

Upon activation of either detection chamber, the DC-1 alarm circuit is activated and "locks-in." When the smoke

Mounting Data



NOTE: BOX DEPTH DETERMINED BY QUANTITY OF CONDUCTORS USED REFER TO NATIONAL ELECTRICAL CODE.

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particles or products of combustion have cleared from the detector it can be reset by interrupting the power input from the control panel.

The Model DC-1 consists of a mounting plate with in-line connector and a plug-in detector head with an alarm indicating LED. The pre-wired plug-in connector affords easy connection to the snaplock mounting plate and system wiring. A concealed functional test feature has been provided to check the operational integrity of the detector. When a magnet is applied to the designated test point area (one for each chamber) of the detector case, a hidden reed switch is activated which will initiate a functional alarm condition. This method provides a separate test for each detection chamber and its associated electronic circuitry.

A remote alarm lamp (Model RL-3, 4 or 6) may be utilized when the detector is concealed from view, or a remote relay may be connected to the DC-1. When a relay is used and the control function is critical, no more than one DC-1 should be installed in a particular circuit or zone, and no other initiating devices should be installed in that same circuit or zone. An exception to this rule would be an application where a number of relays were used, each of which was connected to the same critical control function.

The DC-1 operates from a nominal 21 Vdc source, provided by a Pyrotronics Control Panel. The detector requires a very small standby current (less than 150 microamperes), which permits the use of a two wire detector circuit of #18 AWG, thereby reducing system installation costs.

Application Data

No more than thirty (30) Mode! DC-1 detectors are to be used on each ZN-30 zone circuit. The DC-1 detector is fully compatible with other Pyrotronics Detectors and may be intermixed on the same zone circuit. No more than 30 detectors of any type or combination (other than thermals or manual stations) may be used on any one detector circuit. All Series 1 detectors use a common mounting plate which provides detector interchangeability and plug-in type mounting.

Although UL gives no specific spacing recommendation, the test spacing of 30 ft. (900 sq. ft.) may be used, if practical, but only as a guide or starting point in a detector installation layout. Do not mount detectors in areas close to ventilating or air conditioning outlets. Exposed joists or beamed ceilings may also affect safe spacing limitations for detectors. The NFPA Standard No. 72E, "Automatic Fire Detectors" con-

tains information on detector Scation and spacing considerations, and should be referred to for details.

Architect's Specifications

The fire detector shall be a Pyrotronics Model DC-1. It shall operate on the photo/ion combination principle.

The detector head shall be a plug-in unit containing both photoelectronic and ionization detection chambers. It shall also include the detector electronics and plug-in connector for its mounting plate. The detector shall operate from a 21 Vdc power sourc—and shall contain an alarm indicator LED to signal actuation of the detector. It shall also be possible to connect a remote lamp or a remote relay to the detector.

The photoelectronic chamber shall incorporate a confirmation circuit which changes the scanning rate of the photooptics.

The ionization chamber shall contain an alpha source and shall not exceed .8 microcuries. The unit shall contain no moving parts and the amplifier switching circuit in the detector shall be entirely solid-state.

A concealed calibrated test feature shall be provided to check the operational integrity of each detection chamber. The test feature shall provide a concealed, tamperproof method for testing the detector. For test purposes the generation of actual smoke or the removal of the detector from its mounting plate shall not be required.

The detector, or group of detectors, shall require a two-wire circuit of #18 AWC thermoplastic fixture wire enclosed in conduit or #18 AWG limited energy shielded cable without conduit, if permitted by local building codes.

Electrical Information

Current Requirement: Normal-150 µA Max.

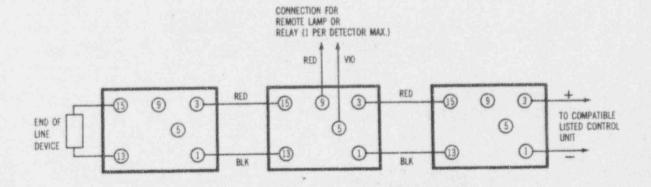
Alarm-100 mA Max.

Voltage Range: 19-23 Vdc

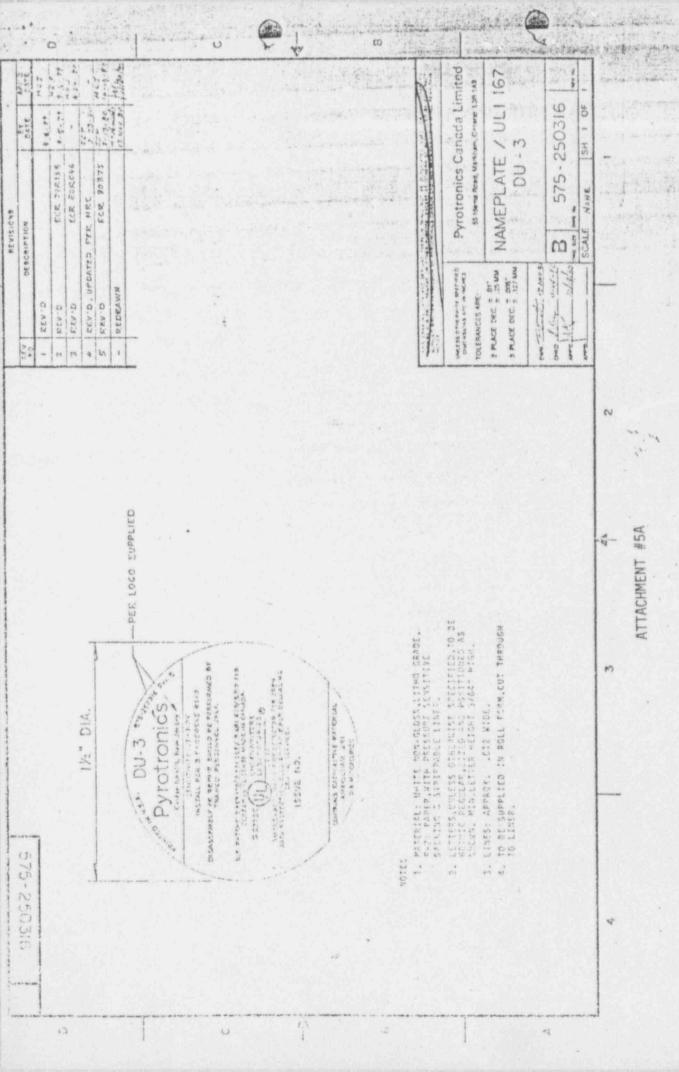
Ordering Information

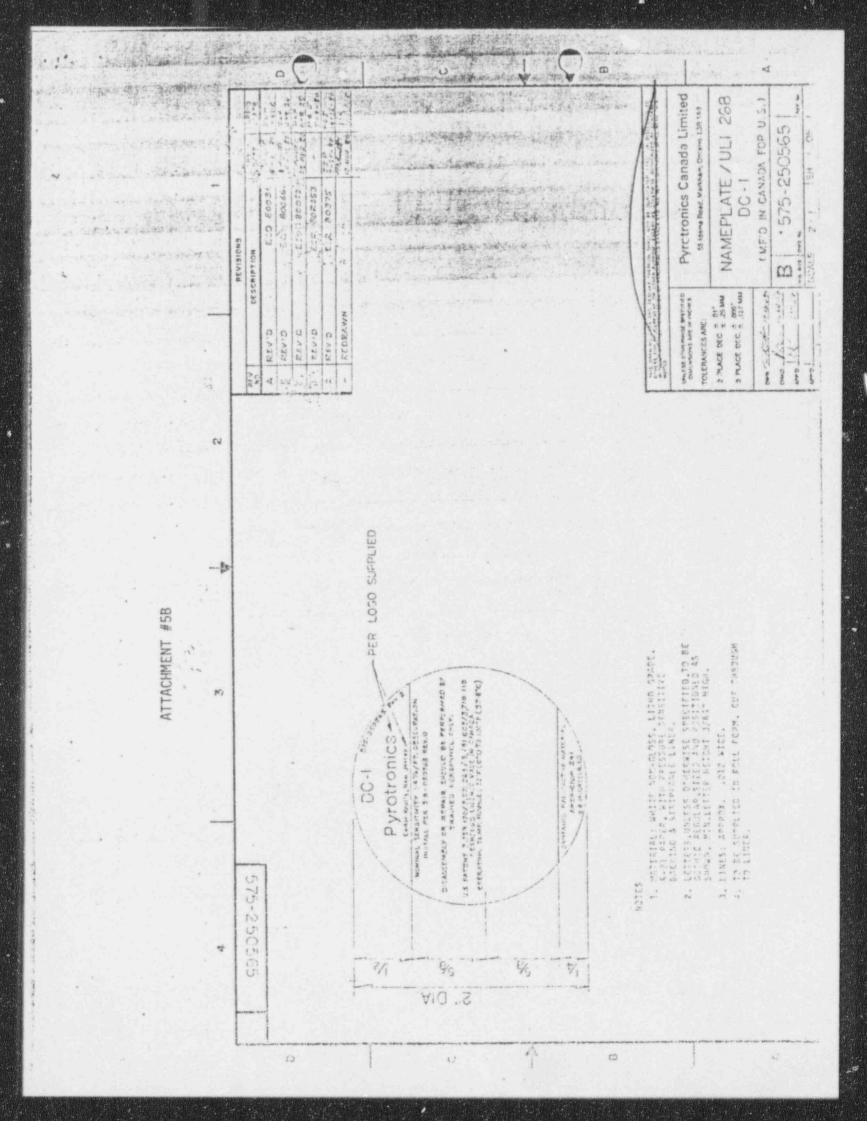
Model	Description	Ship Wei	F
DC-1	Combination Fire Detector, Surface Mounting (includes detector and mounting plate)	1.5	.7

Typical Wiring



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BRANCH LOCATIONS FOR STORAGE OF DETECTORS

G. TOTH Chicago Branch 490 Wrightwood Drive Elmhurst, Ill. 60126

L. PACKHEM
Boston Branch
22 Chestnut Place
Needham, Massachusetts 02192

N. KRANTZ Detroit Branch 12842 Farmington Road Livonia, Michigan 48150

N. DI REZZI New Jersey Branch 230 Route 22 Green Brook, New Jersey 08812 R. VALENZ Miami Branch 1515 N.W. 167th Street Miami, Florida 33169

D. STUART Atlanta Branch 3525 North Causeway Blvd. Suite 317 Metarie, Louisiana 70002

B. HAHNLE Dallas Branch 3201 Highway 67 Suite D Mesquite, Texas 75150

R. BURRIER Washington Branch (Amplitron) 4921 Wyaconda Road Rockville, Maryland 20852 M. LONCTOT Van Nuys Branch 13631 Saticoy Street Van Nuys, California 91402

N. JENSEN
Fresno Branch
P.O. Box 4321
Fresno, California 93744

J. WRIGHT Denver Branch 5701 North Logan Street Denver, Colorado 80216

C. BEARD
Kansas City Branch
1504A North Topping
Kansas City, Missouri 64120



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

Date 5/11/8/

Requestor

0:	Material Certification & Procedures Branch, 426-SS
SUBJECT:	MLB REQUEST FOR MCPB ASSISTANCE
RETURN:	MLB, 396-SS Control No.: 67283/07284 License No.: 29-68864-63/(attached) (attached) (attached) (attached)
	License No.: 29-68864-63/(attached)
	License No.: 29-68864-65/(attached) Letter No.: Not applicable for Jafety Review. Rese sources are stated to be the same acustom review presently licensed for devices. New source review
ASSISTANC	These sources are stally licensed same acoustom review presently licensed fight
	New source review New device review Amore ditected New device review
	Other (see remarks)
REMARKS:	Catalog has been checked. No information is available on the source/device.
	We are not aware of any specific license which authorizes possession and use of this device.
	Manufacturer is located in Agreement State. MLB has verified that no device review is completed or pending, and that a custom review is required.
	★ Manufacturer is located in non-Agreement State.
	Source/device will be imported.
	If information provided by applicant is inadequate, assistance is required in the form of a letier/standard paragraphs and guides to request additional information from applicant.
	This case is being recorded in the computer as being assigned to I-5. When it is returned to MLB, it will be reassigned to a MLB reviewer.
	Other GUINT