KAY-RAY® INC.

INDUSTRIAL PROCESS CONTROL EQUIPMENT

390 Holbrook Drive • Wheeling, IL 60090 • (312) 520-1100 • TELEX: 281-085 • CABLE: KAYRAY • FAX: (312) 520-1101

August 7, 1987

Mr. J.R. Madera
Materials Licensing Section
U.S. NUCLEAR REGULATORY COMMISSION
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Re: Application for Renewal of License No. 12-11184-01
Control No. 79165

Dear Mr. Madera:

Enclosed you will find, in duplicate, the additional information you requested recently concerning the "hands-on" training of Kay-Ray field service engineers.

I have added Section D., "Hands-On Training of Field Service Engineers" to the supplemental information on our service operation sent to you on July 17, 1987. The first page of this three-page set replaces Page 6 of the set sent on July 17. The remaining two pages (7 of 8 and 8 of 8) should be added to the original set.

As before, if you need any further information, or if you need clarification of any points, please contact me at (312) 520-1100.

Yours truly,

Alan J. Peterson

Alan J. Peterson
Radiation Safety Officer

cc: John Benway, Director of Engineering

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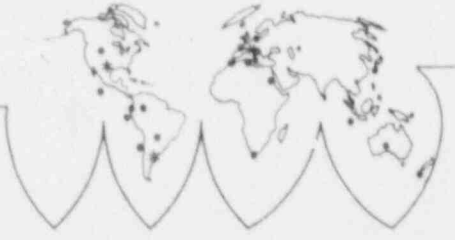

C. TRAINING OF ANCILLARY PERSONNEL

1. Initial Training

a. As noted in the application for renewal of our specific license, all new Kay-Ray employees are given a three-page radiation safety memo to read. They are required to sign an attached sheet to show that they were given this information. A copy of this memo is attached.

b. This memo is also given to employees of our janitorial service.

2. Retraining

Kay-Ray office personnel and janitorial service personnel who do not attend the annual refresher training provided for badged personnel, will be given the same memo to read annually.

D. "HANDS-ON" TRAINING OF FIELD SERVICE ENGINEERS

1. Formal Training

a. All Kay-Ray field service engineers attend the five-day Installation and Nuclear Radiation Safety Course given by the Field Engineering Services (FES) group.

b. On the fourth day of the course, the class is divided into four groups. There are three demonstrations set up employing small loaded source housings:

(1) A single point level system employing a model 7062P (conical beam) source housing and a model 7353 detector.

(2) A density system employing a model 7062P source housing, an eight-inch diameter steel pipe, a pipe saddle, and a model 7012 detector.

(3) A model 7062 (fan-shaped beam) source housing.

c. The fourth group goes to Kay-Ray's source loading cage to observe closely how source housings are constructed, how source capsules are crimped into holders, and how the holder is installed into a source housing. Dummy capsules are used for this demonstration.

d. In the classroom, the students are shown:

(1) How to perform a radiation survey of a typical Kay-Ray source housing. Using a beta/gamma survey meter, the students measure on the surface and at 12 inches from the housing and record their readings.

D. 1. d. (2) How the dose rate in the beam decreases with distance. The students measure the beam intensity at one-foot intervals and record their results.

(3) How to calculate the beam intensity directly in front of the housing by using the readings obtained above and the inverse square law.

(4) How to calculate worst-case exposures by using the above measurements and multiplying them by the appropriate time factors.

(5) How to plot the beam spread by measuring the dose rates at various points to the side of the beam. The students take measurements, record their results, and determine the beam shape.

(6) How a radiation beam can be scattered and absorbed. A concrete block is placed in the beam, the students measure dose rates at various locations, and record their results.

(7) How to perform a leak test of a source housing employing a Kay-Ray leak test kit. The students then perform their own leak tests.

(8) How to perform a single point level system startup and radiation survey. The students fill in a standard Kay-Ray form used for this purpose.

e. Each group performs activities similar to those described a-above on the density system setup.

f. On the model 7062 setup, each group determines the maximum dose rate in the beam, determines the beam pattern in two planes, and calculates the worst-case exposure.

2. Additional Training. The following individualized hands-on training is given to field service engineer trainees:

a. Each trainee is given detailed engineering drawings of Kay-Ray source housings. These drawings show completed assemblies, cross sections, sub-assemblies, and individual parts.

b. Each trainee is shown in greater detail how a source capsule is crimped into a holder and how the holder is installed in a source housing. Engineers are not allowed to crimp or install real capsules.

D. 2. c. The trainee is shown how to safely remove and re-install a shutter mechanism (shutter block, shaft, operating handle, roll pins, clips, and seals) from two different types of source housings. This knowledge is used to make emergency repairs in the field. The trainee is told to return damaged housings or housings that require difficult repairs to Kay-Ray whenever possible.

d. Each trainee is shown how to analyze a leak test swab.

e. Before going on a service call by himself, each trainee accompanies a veteran engineer on service calls for at least two weeks

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