THE H. C. NUTTING COMPANY
GEOTECHNICAL AND TESTING ENGINEERS SINCE 1921
4120 AIRPORT ROAD • P.O. BOX C • CINCINNATI, OHIO 45226 • 513-321-5816
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BOX NUMBER 11 • HIGHLAND HEIGHTS, KENTUCKY 41076 • 606-261-2043

September 5, 1985

United States Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Elyn, Illinois 60137

Attn: Ms. Patricia J. Whiston

Re: NRC License Addendum
(34-14924-01)

Dear Ms. Whiston:

In May, 1985, we requested and received an approved addendum to our NRC License No. 34-14924-01. This request related to the use of a Victoreen Model 692 Survey Meter in lieu of the discontinued Victoreen Model 592.

At the time of our request, the Model 692 unit was available; however, upon receipt of your approval, we proceeded to order the units. When ordering the units, we were informed by the manufacturer that they were having some difficulty with the battery holders. Thus, manufacturing of the unit was suspended until the problem was corrected by the Research & Development Division.

As of this date, we have been told by the manufacturer that it is going to be a minimum of 30 days more before the first unit will come off the assembly line. Thus, due to the lack of foresight in May, we are now requesting another addendum change. In this case, we will have the option to select from several survey meters. The meters in question will be a Victoreen Model 400-410, a Victoreen Model 492 or a Dosimeter Corporation Meter Model 3009.

For your review, I have again enclosed the corrected pages of our Radiation Control Manual and Operations Control Manual and Operations Emergency Procedures. In addition, we have enclosed copies of the manufacturer's operating manuals for the meters in question, along with our check for $230.00.

If you should have any questions or require additional information on this matter, please contact the writer.

Applicant Sept 15
Check No. 15950
Amount Fee Category $230 (30)
Type of Fee Amendment
Date Check Rec'd 9/12 Rec'd LFMB
Received By CP 9/12/85

Very truly yours,

THE H. C. NUTTING COMPANY

W. Becker,
Manager - NDT Division

RECEIVED
SEP 09 1985
REGION III

WB/sk

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REG3 LIC30
34-14924-01 PDR

CONTROL NO. 79716 SEP 9 1985

HCN
Operating
&
Emergency
Procedures

III. METHODS AND OCCASIONS FOR CONDUCTING RADIATION SURVEYS

All The H. C. Nutting Company's personnel working with sealed sources will have with them at all times, during a radiographic operation an operable Radiation Survey Meter. This meter will be capable of measuring from 0 to 1000 MR/hr radiation levels. The survey meter shall have a small tag attached to it showing the date of the last calibration. It shall be within 90 days.

A physical radiation survey shall be made after each exposure of a radiographic operation. This is to determine that the sealed source has returned to its shielded position. In addition, a physical radiation survey shall be made prior to securing the radiographic exposure device and storage container as specified in NRC CFR 34.43.

Physical radiation survey records shall be kept and maintained for inspection by the NRC.

Should the survey meter and back-up survey meter become inoperable, all operations will cease immediately. They will not resume until a replacement meter is obtained.

Area surveys must be made during each exposure to ensure that the radiation level does not exceed 2 MR per hour at the boundry of the restricted area.

A radiation survey must be made of the passenger department of the vehicle transporting the sealed source to the field job site. The radiation level of the passenger department must not exceed 2 MR per hour.

Batteries for the survey meters will be checked using a battery tested at interval not to exceed one month.

Since all normal of The H. C. Nutting Company's radiographic work will be performed at the field job sites, the following precautions must be followed:

A. RESTRICTED AREAS

All restricted areas must be kept under constant surveillance by the radiographer or radiographer assistant. Rope and radiation signs shall be used to designate the perimeter of the restricted area.

If the swab should show more than 0.2 MR per hour, the Chief Radiographer will withdraw the equipment involved. He will notify the Company's Radiation Safety Officer, the manufacturer and the NRC. The malfunctioning equipment will be returned to the manufacturer following special handling, instructions outlined by the manufacturer. He will notify the NRC Commission, Washington, D.C. by telephone and confirmed by written report. A copy of this confirmation will be forwarded to NRC Region II, Regional Compliance Officer.

J. COMPANY SURVEY METER CALIBRATION - TECH-OPS 571 SURVEY METER CALIBRATION KITS.

Calibration of the Victoreen Gamma-Survey meters listed in Section 2.2 will be performed at intervals not to exceed three (3) months.

The H. C. Nutting Company will use a Tech-Ops 571 Survey Meter Calibration Kit consisting of a 57100-1 directional source shield containing Model Co-.012 Cobalt 60 Source of approximately 12 millicuries, and a tape measure. This calibration will be performed in the rear court area of The H. C. Nutting Company's Laboratories, 4120 Airport Road, Cincinnati, Ohio. A detailed plan of this area is given in Appendix A.

If the instrument readings correpond to the calculated values within a range of plus or minus 10%, it can be considered to be properly calibrated. If the reading does not fall within a plus or minus 10%, of the calculated value, an adjustment is required.

The calibration of the Radiation Survey Meters will be performed by the Radiation Protection Officer, the Chief Radiographer or a qualified radiographer.

Procedures:

The proper calibration procedure is outlined in the following sections of the Operations & Emergency Procedures Manual.

C. Sealed Sources and Devices

1. The H. C. Nutting Company is authorized to use only those sealed sources and devices designated on its' license. A copy of our current license is included in these procedures.

2. Instructions for the safe use of these devices are a part of this manual.

3. Each sealed device is to be clearly labeled with radiation caution symbol and the words CAUTION RADIOACTIVE MATERIAL. Each sealed source shall have a label or tag plainly stating the contents and quantities. Radiographers are responsible for keeping equipment in their possession properly labeled.

II. HANDLING AND USE OF LICENSED SEALED SOURCES

General Instructions

Each radiographic device shall be checked with an operable radiation survey meter before it is moved or put into operation. This is to ensure the source is in the container and in a shielded position. Radiographic devices are not to be moved unless it is locked with caps and plugs in position.

Specific instructions for making an exposure with Iridium 692, Tech-Ops Models 660 Camera Automation Industries Model 100A Camera and Cobalt 60 Tech-Ops Model 680 Camera.

1. Have a operating - calibrated radiation survey meter in your possession.

2. Position source guide tubes at end of camera, straighten the source guide tubes and position film.

3. Position control cable and crank as far as possible from source container and film.

4. Unlock camera and place in the selector ring in the connector position.

5. Keep device locked during all assemble operations.

VII TRANSPORTING SEALED SOURCES TO FIELD LOCATIONS, PACKING OF RADIOGRAPHIC EXPOSURE DEVICES AND STORAGE OF CONTAINERS IN VEHICLES, POSTING OF VEHICLES AND CONTROL OF SEALED SOURCES

1. In transporting seal sources to field locations, the source must be locked and the key assigned to the radiographer in charge. The sealed source must be locked and placed in a locked box, secured in the truck or trailer to prevent movement during transporting. The vehicle must be properly posted in accordance with the Department of Transportation regulations, Section 177.823 Title 49. The following requirements must be met:

   a) Vehicle must be posted on front, rear and two sides with the proper radioactive signs.

   b) Letters are to be black on yellow background, at least two (2) inches high and a minimum stroke width of 1/2 inches. Yellow background to extend at least one inch above and below letters.

   c) Signs are to be placed no closer than three inches from any other sign or lettering.

   d) These signs must be removed or covered when radioactive materials are not being transported.

2. The radiographer will be responsible for keeping the signs on the vehicle clean and clearly visible. When the vehicle is used for temporary storage of radioactive material, the vehicle will be posted on four sides with the signs - CAUTION - RADIOACTIVE MATERIAL.

3. Prior to departing to a field exposure site, the transporting vehicle must be equipped with sufficient material to establish a restricted area in case of an accident.

4. The radiographer must have a Radiation Survey Meter, which has been calibrated within 90 days, a Victoreen Model 541-A Dosimeter and a Gardray Film Badge. The source must be placed as far away from the driver of the vehicle as possible.

5. The radiogrpaher must monitor the source device to determine that the amount of radiation on the surface of the device. The radiation must not exceed 200 MR per hour or 10 MR at one meter.

2.6 COMPANY LEAK TEST PROCEDURES (TECH-OPS) 518 LEAK TEST KIT ONLY

Tech-Ops 660-664 Camera, Tech-Ops 571 Gamma-Survey Meter, Calibration Units, Tech-Ops 680-664 Camera and Automation Industries Model 100A Camera.

1. Leak tests shall be performed at intervals of six months.

2. The leak test will be performed by the Radiation Protection Officer, Chief Radiographer or a Qualified Radiographer.

3. Leak Test Procedures:

   a. The apporoved leak test procedures to be followed are outlined in our approved Operations and Emergency Procedures Manual.

2.7 COMPANY SURVEY METER CALIBRATION USING TECH-OPS 571 SURVEY METER CALIBRATION KITS.

A. Calibration of the Victoreen Gamma-Survey Meters listed in Section 2.2 will be performed at intervals of three (3) months.

The H. C. Nutting Company will be using a Tech-Ops 571 Survey Meter Calibration Kit consisting of 57100-1 directional source shield containing Model Co-.012 Cobalt 60 Source of approximately 12 millicuries, a tape measure and instruction manual. This calibration will be performed in the back court area of The H. C. Nutting Company's Laboratories, 4120 Airport Road, Cincinnati, Ohio. A detailed plan of this area is given in Appendix A.

If the instrument readings correspond to calculated value within a range of plus or minus 10%, it can be considered to be properly calibrated. If the reading does not agree with a plus or minus 10% an adjustment is required.

The calibration of the Radiation Survey Meters will be performed by the Chief Radiographer or a qualified radiographer.

B. Procedures - The calibration procedures to be followed are outlined in our approved Operation and Emergency Procedures Manual.

2.2 INSTRUMENTS - RADIATION MONITORS

INSTRUMENT	MANUFACTURER	MODEL	RANGE
Gamma-Survey	Victoreen	~~592-B~~ 692	0-10MR 0-100MR 0-1000 MR
Dosimeters	Victoreen	541-A	0-200 MR
Chargers	Victoreen	200-A	0-2R
Film Badges	Gardray Film		

REMARKS:

Monitoring equipment is in accordance with Part 34, Section 34.24 and Part 20, Section 20.202.

2.3 EQUIPMENT SOURCES AND HANDLING UNITS

INSTRUMENT	MANUFACTURER	MODEL	RANGE
Iridium 192 Cameras	Tech-Ops	660-664	100 Curies
Iridium 192 Cameras	Automation Ind.	100-A	100 Curies
Iridium 192 Capsul	Tech Ops.	A-424-9	100 Curies
Iridium 192 Capsul	Automation Ind.	41701	100 Curies
Gamma Survey Meter Calibration Unit	Tech-Ops	TO-571	15 MC/ CO-60
Cobalt 60 Source Camera	Tech-Ops	680-664	100 Curies
Cobalt 60 Capsul	Tech-Ops	A-424-14	100 Curies

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Gamma-Survey	Victoreen	~~592-B~~ 692	0-10MR 0-100MR 0-1000 MR
Dosimeters	Victoreen	541-A	0-200 MR
Chargers	Victoreen	200-A	0-2R
Film Badges	Gardray Film		

REMARKS:

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Iridium 192 Capsul	Tech Ops.	A-424-9	100 Curies
Iridium 192 Capsul	Automation Ind.	41701	100 Curies
Gamma Survey Meter Calibration Unit	Tech-Ops	TO-571	15 MC/ CO-60
Cobalt 60 Source Camera	Tech-Ops	680-664	100 Curies
Cobalt 60 Capsul	Tech-Ops	A-424-14	100 Curies

Radiation Control Manual

2.2 INSTRUMENTS - RADIATION MONITORS

INSTRUMENTS	MANUFACTURER	MODEL	RANGE
Gamma Survey	Victoreen	692	0-1000 MR
		492	0-1000 MR
		400	0-1000 MR
	Dosimeter Corp.	3009	0-1000 MR
Dosimeter	Victoreen	541-A	0-200 MR
Chargers	Victoreen	200-A	0-2R
Film Badges	Gardray		

REMARKS:

Monitoring equipment is in accordance with Part 34, Section 34.24 and Part 20, Section 20.202.

2.3 EQUIPMENT SOURCES AND HANDLING UNITS

INSTRUMENT	MANUFACTURER	MODEL	RANGE
Iridium 192 Cameras	Tech-Ops	660-664	100 Curies
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Iridium 192 Capsul	Tech-Ops	A-424-9	100 Curies
Iridium 192 Capsul	Automatic Ind.	41701	100 Curies
Gamma Survey Meter Calibration Unit	Tech-Ops	TO-571	15 MC/ CO-60
Cobalt 60 Source Camera	Tech Ops	680-664	100 Curies
Cobalt 60 Capsul	Tech Ops	A-424-14	100 Curies

3.1.3 SOURCE CONTROL

Each source, when removed from the storage vault by authorized H. C. Nutting Company's personnel, will be signed out in a daily utilization log book with the time and date of removal given. On return, of the source, date, time, and signature of the authorized personnel must also be entered in the daily utilization log book. Further, each and every exposure made with the radio-isotope machine will be registered in the daily utilization log book giving date, time and length of exposure. A Survey Meter will be used on all exposures.

3.2 RADIATION MONITORING

The following monitoring procedures will be followed at all times:

3.2.1 PERSONNEl

The H. C. Nutting Company's personnel working with radio isotopes will be assigned a weekly Gardray film badge. They will be assigned a Victoreen Model 541-A Dosimeters. Individual dosimeter records will be kept on each individual. Film badges will be stored in the NDT Department's office, where they will be picked up by personnel upon entering or leaving the laboratory. The dosimeters will be handled in a similar manner. The dosimeter will be properly charged prior to leaving the office.

4.0 TRAINING

The purpose of The H. C. Nutting Company's Training Program is to provide the radiographer, radiographer assistant and the radiographer trainee with a complete understanding of the effects of radiation, radiation safety, radiation exposure devices, radiographic monitoring equipment and Radiation Control Manual and The H. C. Nutting Company's Operation and Emergency Procedures.

In addition, the approved Training Program will assure the licensee that all radiographic personnel are qualified to act as radiographer, radiographer assistant, or radiographer trainees, as set forth in The H. C. Nutting Company's Radiation Control Manual, Operation and Emergency Procedures and/or the latest NRC Regulations.

During the training, the radiographer trainee will not handle or have access to radioactive devices, requiring NRC license, without the presence of a qualified radiographer. Radiographer trainee will be assigned a Guardray Film Badge and a Victoreen 5410-A-0-.2R Dosimeter before being permitted in the restricted area.