



Boone Hospital Center

1600 E. Broadway • Columbia, Missouri 65201 • Phone 314-875-4545

Nov. 8, 1981

Dr. Bruce Mallett
US NRC Region 7
Glen Ellyn, Illinois 60137

Reference: NRC License #24-01565-01

Dear Dr. Mallett:

I enclose two (2) amendment requests for the Isotope License held by Boone Hospital Center in Columbia, Missouri.

I would appreciate it very much if you would treat these as individual amendments, not holding up approval of amendment until both are approved, rather, providing me notification as each one is approved.

The first one enclosed is a notification and request for amendment to cover a move of the Nuclear Medicine Facilities at Boone Hospital Center. The amendment describes the new facilities and provides a report on the survey performed to assure that the vacated facilities were absolutely clean.

The second amendment enclosed is a request that Boone Hospital Center be licensed to prepare and distribute unit doses. We wish to transport, in a suitably marked vehicle manned by a qualified radiation specialist, that quantity of radioisotopes needed to perform one-day's series of tests in a hospital of one-hundred beds.

Sincerely,

A. H. Emmons
A. H. Emmons
Radiation Safety Officer
Boone Hospital Center

AHE:BE

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24-16281-01 PDR

CONTROL NO. 05644

AMENDMENT REQUEST

BOONE HOSPITAL CENTER

1600 East Broadway
Columbia, Missouri 65201

NRC License # 24-01565-01

SUBJECT: Preparation and Transport of Unit Doses

The Boone Hospital Center at Columbia, Missouri serves as a special service provider to a number of small hospitals within a sixty-mile radius of Columbia, Missouri. To illustrate, the Nuclear Medicine Facility of Boone Hospital Center provides nuclear medicine technician assistance to Moberly Regional Medical Center. Boone Hospital Center provides a radiologist and physics services to the Radiation Therapy Department of Bothwell Memorial Hospital in Sedalia, Missouri. Boone Hospital Center provides educational programs on computer fundamentals, nursing care of the radioactive patient, radiation disaster training, etc. to technicians and physicians from hospitals within the specified radius.

Recently the nuclear medicine technologist at one of these hospitals resigned. Boone Hospital Center is currently providing a nuclear medicine technologist two days per week to perform their procedures. In the present circumstances a moly-technetium generator arrives on Monday morning. The "on-loan" technologist arrives on Monday morning must milk the generator, perform calibration of the doses required for the patients that day, calibration of the dose calibrator, etc. In general, the technician spends approximately two hours in the preparation of doses prior to the arrival of the first

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patient. Also, the content of the generator is poorly utilized when the technician only milks twice in one week.

The concept is to prepare unit doses in syringes. The syringes to be contained in tubular lead shields. Each tubular lead shield to bear a label on the outside identifying the calibration date, time, quantity and type of injection materials contained. In essence, a unit dose. These would be prepared in the hot-laboratory facility in Boone Hospital Center and individually packaged as loaded syringes in the tubular lead shields. The tubular shields would then be packaged within a cardboard box and the cardboard box would bear a label identifying the contents as radioactive materials and each separate unit dose would be enumerated on the cardboard box label.

In addition to containing the tubular shields with loaded syringes, the cardboard box would be packed with absorbant materials in quantity sufficient to absorb the content of all unit doses contained in the cardboard box.

The cardboard box, with its contained unit doses would be placed in a car and transported from Boone Hospital Center to the receiving hospital. The car would be marked on both sides with a magnetic sign which indicates that the vehicle is being used to transport radioactive materials. The driver of the vehicle would be either a qualified radiation/medical physicist, the hospital RSO, or the chief nuclear medical technologist who is certified in nuclear medicine. In short, the driver of the vehicle would be familiar with the content of the radioactive shipment, familiar with the hazards of that shipment, and capable of performing surveys and taking emergency precautions in the event of an accident. In addition to transporting the unit doses suitably packaged, the vehicle will be equipped with an ion-chamber type survey meter and a sensitive geiger counter survey meter.

Shielding of the packaged unit doses will be such that radiation levels on the surface of the cardboard container will not exceed 0.5 mr per hour.

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All packages will be marked with a label that indicates that the content is radioactive, a listing of telephone numbers to call in the event of an accident or an emergency, and a warning to the effect that the package should not be opened or moved except by a qualified expert in radiation safety.

The maximum quantities of individual unit doses which are contemplated for transport are given in Table I. The maximum quantity of unit doses to be transported at any one time and to any one location are given in Table II.

TABLE I

MAXIMUM QUANTITY OF ISOTOPE PER UNIT DOSE

ISOTOPE	FORM	QUANTITY
Tc-99	Solution	4 mc
Tc-99	Bone, MDP	20 mc
Tc-99	Brain, DTPA	20 mc
Tc-99	Lung, MAA	5 mc
Tc-99	Liver, Sulfur Colloid	5 mc
I-125	Metal, Inplant Seeds	30 mc
Co-57	Schilling Test	1.0 microcurie
Co-58	Schilling Test	0.8 Microcurie
I-131	Thyroid Uptake	200 microcurie

TABLE II

MAXIMUM QUANTITY TO BE TRANSPORTED
AT ANY ONE TIME

ISOTOPE	FORM	# of DOSES	QUANTITY
Tc-99	Flood Solution	1	4 mc
Tc-99	Bone, MDP	3	60 mc
Tc-99	Brain, DTPA	3	60 mc
Tc-99	Liver, Sulfur Colloid	2	10 mc
Tc-99	Lung, MAA	2	10 mc
Co-57-58	Schilling	2	0.004 mc
I-131	Uptake Capsules	3	0.6 mc

			Max Total 145 mc

OR

I-125	60 seeds (at 0.5 mc)	1	30 mc

			Max Total 30 mc

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We request that our license for use of by-product materials be amended to permit us to prepare and transport unit doses of radiopharmaceuticals to hospitals within a sixty-mile radius of Boone Hospital Center in Columbia, Missouri. We understand that the receiving hospital license will also have to be amended to receive and use these unit doses.

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