MET LAB
INCORPORATED
605 ROTARY STREET; HAMPTON, VIRGINIA 23661 TELEPHONE 804 / 827-7176

In Reply Refer to:
13 OCT 82

SUBJECT: NRC LICENSE 45-09963-o1 AMENDMENT NO. 12, 14 JUN 82

TO: UNITED STATES NUCLEAR REGULATORY COMMISSION
MATERIAL LICENSING BRANCH
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY
WASHINGTON, DC 20555

ATTN: JOSEPH C. WANG

1. Reference is made to:

   a. License No. 45-09963-01
   b. Mail Control No. 04401
   c. Amendment No. 12

2. In April 1982 I requested that the use of Technical Operations Source Model 90003, Radiographic Exposure Device 920 and Source Changer 850 be included in our license. At the time of our license renewal this inclusion was omitted.

3. The request was made as this is currently the only equipment meeting requirements proposed by the Commission. The inclusion will be very important when this change becomes mandatory, and/or when our Company purchases new equipment.

4. Please make this correction to our license at your earliest convenience.

Very truly yours,

O. W. Ward, III
President

OWW/f

replace due - NRC error

3

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INSPECTION AND ENFORCEMENT

6h OVERALL ORGANIZATIONAL STRUCTURE

6h.1 Information previously submitted

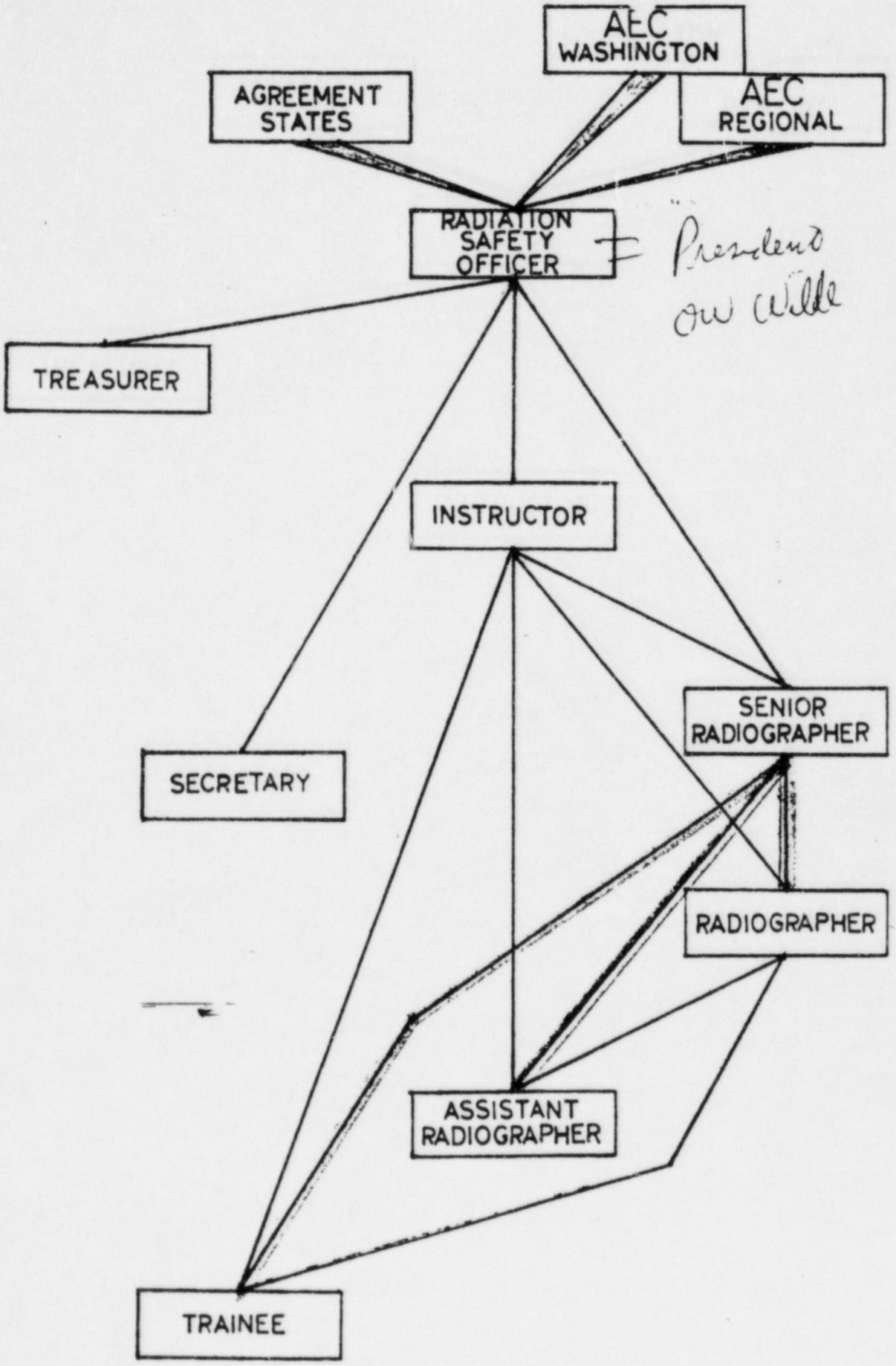
6h.1.1 22 September 70
6h.1.2 12 March 74

THE
ORGANIZATIONAL STRUCTURE
of the
RADIOGRAPHY PROGRAM
of
MET LAB, INCORPORATED
HAMPTON, VIRGINIA

THE PURPOSE OF THIS ORGANIZATIONAL STRUCTURE IS TO DEFINE CLEAR AND UNCOMPLICATED LINES OF AUTHORITY IN THE RADIATION PROGRAM.

IT WILL BE THE RESPONSIBILITY OF EACH INDIVIDUAL TO ASSURE THAT HIS DUTIES AND THE DUTIES OF HIS SUBORDINATES ARE COMPLETED WITH UNDUE DELAY IN A MANNER WHICH ASSURES THE SAFE USE OF BY-PRODUCT MATERIAL AS SET FORTH BY THE NUCLEAR REGULATORY COMMISSION, AGREEMENT STATES AND MET LAB, INCORPORATED.

INDIVIDUAL DUTIES AND RESPONSIBILITIES MAY NOT BE DELEGATED TO SUBORDINATES, HOWEVER, DUTIES AND RESPONSIBILITIES MAY BE PASSED ON TO SUPERIORS. THEREFORE, EACH INDIVIDUAL SHALL BE THOROUGHLY FAMILIAR WITH AND CAPABLE OF PERFORMING THE DUTIES OF ALL POSITIONS UNDER HIS AUTHORITY.


AEC
WASHINGTON
AGREEMENT
STATES
AEC
REGIONAL
RADIATION
SAFETY
OFFICER
President
Ow Wilde
TREASURER
INSTRUCTOR
SENIOR
RADIOGRAPHER
SECRETARY
RADIOGRAPHER
ASSISTANT
RADIOGRAPHER
TRAINEE

RADIATION SAFETY OFFICER

Subordinates: Instructors, Senior Radiographers, Radiographers, Assistant Radiographers Trainees, Treasurer, and Secretary-Bookkeeper.

Duties: Serve as the licensee's liaison officer with the Atomic Energy Commission and Agreement States on license matters. Maintain control of the procurement, use and disposal of licensed byproduct material. Develope and maintain up-to-date operating and emergency procedures. Establish the training program for trainees, assistant Radiographers, Radiographers, Senior Radiographers and instructors. Establish a personnel monitoring program. Establish storage facilities, leak test program, licensee's record keeping system and survey instrument calibration program. Conduct monthly inspections and quarterly inventories. Review and insure maintenance of those records not kept by himself. Establish and maintain the internal inspections system. Assume control in emergency situations; investigate the cause of incidents and determine necessary perventive action.

Qualifications: By oral and practical examination.

Prerequisites: Four years experience in Gamma Radiography; two years of which were actively spent as a Radiographer performing radiographic assignments. Sufficient technical and administrative background to assure the safe and successful operation of the Radiographic program.

OSCAR WILDE WARD III (Radiation Safety Officer)

Education: B.S. Biology Parsons College 1969
Postgraduate work in Biology and Chemistry
Virginia Commonwealth University and Medical
College of Virginia

Experience with Radiation and Sealed Sources:

Basic understanding of Radiation and its effects obtained in Biology, Chemistry and Physics courses.

Associated with several Biology experiments using tracer isotopes during graduate work. Received basic experience in Radiation Safety and handling procedures.

Became a Radiation worker actively working with sealed sources in 1970 when employed by Met Lab, Inc, Received further instruction in Radiation safety, handling procedures, and radiation monitoring through company training program and on the job training. Worked as a Radiographer since 1971 using X-Ray machines (50 KV to 300 KV), Iridium 192 (10 curies to 118 curies) and cobalt 60 (15 curies to 20 curies). The experience with cobalt 60 was obtained while working in conjunction with Froehling and Robertson on several large jobs. Performed source changing operations, leak tests and isotope calibrations. Have conducted Met Lab's on-the-job training program for the past year and a half.

TREASURER

Supervisor: Radiation Safety Officer

Subordinate: None

Duty: Responsible for prompt authorization of payment for all items necessary for the safe operation of all phases of the radiation program.

Examples of necessary items:

- Blood Tests
- Film Badge Service
- Bio-assay Service
- Dosimeters
- Survey Meters
- Calibration of Survey Meters
- Equipment Repairs
- Equipment Replacement
- Source Disposal
- Leak Tests
- Special Retreval Services

Qualification: Elected position;chosen from Board of Directors by vote.

Prerequisites: Member of Board of Directors

SECRETARY - BOOKKEEPER

Supervisor:	Radiation Safety Officer
Subordinates:	None
Duties:	The typing and filing of correspondence, forms, records, and reports associated with licensed activities.
Qualifications:	Oral and practical examination
Prerequisites:	Basic secretarial and bookkeeping skills and the ability to learn the basic vocabulary and terminology associated with licensed activities.

INSTRUCTOR

Supervisor:	RadiationSafety Officer
Subordinates:	Senior Radiographer, Radiographer, Assistant Radiographer, Trainee
Duties:	Conduct the classroom training programs for trainees, Assistant Radiographers, Radiographers and Senior Radiographers. Administer written examinations to trainees, Assistant Radiographers, Radiographers and Senior Radiographers. Maintain the film badge program. Maintain and calibrate Radiation Survey instruments. Help the Radiation Safety Officer maintain the internal inspection system. Assist the Radiation Safety Officer when making monthly inspections of Radiographic devices and associated equipment. Act in an advisory capacity to Radiation Safety Officer in the preparation of training programs and examinations.
Qualifications:	By written, practical and oral examination
Prerequsities:	5 years of experience in the field of gamma radiography in positions of increasing responsibility. Three (3) years of which shall have been spent as a qualified Radiographer; or have been a Senior Radiographer at Met Lab for one (1) year.

SENIOR RADIOGRAPHER

Supervisors:	Instructor, Radiation Safety Officer
Subordinates:	Radiographer, Assistant Radiographer, Trainee
Duties:	Administer and/or conduct on-the-job training of trainees, Assistant Radiographers and Radiographers. Maintain daily dosimeter reports. Maintain storage facilities, exposure devices and associated equipment. Perform source replacement and tagging operations and leak testing. Perform monthly maintenance inspections. Carry out corrective action in emergency situations. Help the Radiation Safety Office maintain the internal inspection system. Help the Radiation Safety Officer conduct quarterly inventories. Review utilization logs. Assignment of isotopoes to Radiographer. Act in an advisory capacity to Radiation Safety Officer in the preparation of-on-the-job training programs and practical examinations.
Qualifications:	By written, practical and oral examination
Prerequisites:	4 years of experience in gamma radiography in positions of increasing responsibility or have been a radiographer for Met Lab for two (2) years.

RADIOGRAPHER

Supervisors:	Senior Radiographer, Instructor, Radiation Safety Officer
Subordinates:	Assistant Radiographer, Trainee
Duties:	Individually performs or who, in attendance at the site where the sealed source or sources are being used, personally supervises Radiographic operations. Responsible for assuring compliance with the requirements of the Atomic Energy Commission regulations, Agreement State regulations, and operating emergency procedures of Met Lab, Inc. Conduct on-the-job training of trainees and assistant Radiographers.
Qualifications:	By written, practical and oral examination
Prerequisites:	Eighteen (18) months experience in gamma radiography inpositions of increasing responsibility or have been an Assistant Radiographer at Met Lab for twelve (12) months.

ASSISTANT RADIOGRAPHER

Supervisors:	Radiographer, Senior Radiographer, Instructor, Radiation Safety Officer
Subordinates:	None
Duties:	Uses Radiographic exposure devices, sealed sources, related handling tools and radiation survey instruments in the process of Radiography under the personal supervision of a Radiographer.
Qualifications:	By written, practical, and oral examination
Prerequisites:	Six (6) months experience in gamma radiography or have completed Met Lab, Inc. trainee program

TRAINEE

Supervisors: Instructor, Senior Radiographer, Radiographer, Radiation Safety Officer.

Subordinates: None

Duties: Obtain the technical and practical knowledge of (Radiography) and (Radiation Safety) through diligent study and application of material and techniques presented during classroom and on-the-job training.

Each trainee will be expected to devote the necessary time to his lessons to enable him to successfully demonstrate through written, practical, and oral examinations that he has understood and retained the material presented.

Qualifications: By oral and written examination

Prerequisites:

Age - Must reach eighteenth birthday on or before the first week of training

Mental - No claustrophobia or acrophobia

Educational Background - Able to read, write and comprehend English and perform mathmatical computations.

Medical History - No history of convulsive seasures, blackouts, or dizzy spells. No blood disorders or history of cardiovascular disease. Not an abuser of alcohol or drugs.

Physical - Able to pass pre-employment physical examination. Distant vision shall equal 20/30 in at least one eye, either corrected or uncorrected. No deafness which would interfer with hearing normally spoken orders.

6i LEAK TESTING PROCEDURES

6i.1 Information previously submitted

6i.1.1 22 September 70
6i.1.2 29 March 74

6i.2 All isotopes shall be leak tested once every six months. In the absence of a current leak test the isotope shall not be used until a leak test is performed.

6i.3 The leak test shall be performed by either the Radiation Safety Officer, Instructor, or a Senior Radiographer taking a smear of the exit port of the exposure device containing the isotope. The smear shall then be returned to leak test kit supplier for evaluation.

6i.4 The following commercially available leak test kits are acceptable

6i.4.1 Leak Test Kit LT-1
Automation Industries
Phoenixville, Pennsylvania

6i.4.2 Leak Test Kit 518
Technical Operations
Burlington, Massachusetts

DEFINITIONS

(1) Radiographic helper - Means any individual who, under the personal supervision of a radiographic operator, uses radiographic exposure devices, sealed sources or related handling tools, or survey instruments in radiography.

(2) Radiographic operator - Means any individual who performs or who, in attendance at the site where the sealed source or sources are being used, personally supervises radiographic operations and who is responsible to the licensee for assuring compliance with the requirement of N. R. C. License.

(3) Restricted area - Means any area to which access is controlled for purpose of radiation protection.

(4) Radiographic area - Means any area in which radiography is being performed and for purpose of control is considered identical to a radiation area.

(5) Dosimeter - A direct reading device which measures the amount of radiation received in mr.

(6) Film badge - A device which contains a radiation sensitive film which when developed tells the amount of radiation received in rems.

(7) Half life - The time required for a radioactive material to lose one-half its strength or curies.

(8) Half value layer - The thickness of a material required to shield out one-half the intensity of a radioactive material.

(9) Dose - The quantity of radiation absorbed per unit of mass, by the body or any portion of the body.

(10) Dose rate - Radiation intensity exists in a period of time. Ex: 20 mr/hr.

(11) Radioactive material incident - Means any condition where a radiation worker is shown to have received a single dose in excess of 3 rems.

(12) Curie - That quantity of a radioactive material which gives off 3.7×10^{10} disintegration per second.

(13) Gamma radiation - Photon emission which originates in the nucleus of an atom.

25

(14) N.R.C. - Means Nuclear Regulatory Commission.

(15) Survey meter - A device which is used to measure the intensity of radiation.

DISCUSSION QUESTIONS

(1) First check the survey meter and make sure of the scale. Then proceed towards the Radiographic Exposure Device. Keep a constant vigil on the survey meter dial. Upon reaching the RED, check the reading of the RED on all sides for proper reading, lock RED, then check to the end of the guide tube.

(2) The three basic means for protection against radiation are:

1. Stay as far away from the radiation source as possible.
2. Have as much shielding as possible between you and radiation source.
3. Spend as little time as possible in radiation area.

(3) In the event of a radiation material incident, the radiographic operator shall see that all personnel are cleared from sufficient area, and take any other steps available to assure that no unnecessary exposure may occur. Report the details of the incident to the Radiation Safety Officer (Oscar W. Ward) who may be reached at home - 804-722-8532, or at his office - 804-827-7176. The radiographic helper would give assistance to the radiographic operator in any way necessary to carry out the above duties.

(4) Any vehicle transporting a radioactive material package bearing a yellow label 3 is required to be placarded on 4 sides with the top portion yellow and the symbol black. The lower portion must be white and the inscription black.

(5) Before an unauthorized person may enter a radiographic area, he must have the permission of the radiographic operator. The radiographic operator will ensure the radioactive material security prior to and during the entry of an unauthorized person.

MULTIPLE CHOICE

(1) (b) Dose rate

(2) (c) 200 mr

(3) (d) All three above

(4) (c) 2 mr/hr

(5) (b) Three months (c) When repaired

(6) (b) 75

(7) (c) one-half

(8) (c) 360,000 mr/hr

(9) (b) mr

(10) (c)

PROBLEMS

(1) (a) The inspector would be informed to remain outside the radiation area. The radiographic operator would then be informed of the inspector's desire to enter the radiation area. The radiographic operator would then decide whether the inspector would be permitted to enter the radiation area. If the radiographic operator permits the inspector in the radiation area the radioactive source must be secured prior to and during the entry of the inspector.

(b) The inspector would be informed to remain outside the radiation area until survey of the radiation area is completed. The inspector's desire to enter the radiation area would then be reported to the radiographic operator.

(2) Immediately notify the radiographic operator, assist him in the immediate securing of the radioactive material, and its removal from the building. The greatest assistance a radiographic helper could extend the fire department would be the removal of the radioactive material from the area.

(3) Immediately notify the radiographic operator who would decide the proper action to take. The radiographic operator would then instruct me to go to the shop and get a meter which functioned properly, or he could instruct me to go the nearest phone and call the shop to have a meter brought to the radiographic area. Upon completion of the call, I would return immediately to the area and assist the radiographic operator in keeping the area under surveillance.

(4) If I found the radioactive material and RED missing, I would immediately notify the radiographic operator who would in turn notify the RSO and the civil authorities. The RSO will in turn notify the NRC.

(5) Notify the radiographic operator who would immediately stop me from working around or with radioactive materials until clearance by the Radiation Safety Officer, who would immediately send my film badge for processing.

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