



# Energy Materials Testing Laboratory

A DIVISION OF FIBER MATERIALS, INC.  
BIDDEFORD INDUSTRIAL PARK, BIDDEFORD, ME. 04005

TEL. 207-282-5911  
TELEX 944480

030-29940

FMI-EMTL-88-133  
14 September 1988

U. S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406

Reference: License No. 18-28017-01  
Docket No. 030-29940

Gentlemen:

This letter is to notify the Commission that the equipment covered in the subject license was installed the week of 10 July 88 at the facility indicated in the license.

In addition, personnel changes have occurred in the areas of Safety Manager/Radiation Safety Officer and Alternate Radiation Safety Officer indicated in the application material due to termination.

Mr. Donald J. Estabrook and Mr. David L. Newton have left the employ of FMI. Mr. Jacques Millette is designated as the Safety Officer/Alternate Radiation Safety officer and Mrs. Delores A. Brunette is designated as the Radiation Safety Officer.

In review of the application material, the following corrections should be made to update the information (Appendix I is a copy of the information submitted):

## SECTION 7

Was:

"Individuals responsible for the Radiation Safety Program:  
Mr. Donald J. Estabrook-Safety Officer/Radiation Safety Officer  
Mr. David L. Newton-Alternate Radiation Safety Officer/NDT Level III"

Log	Oct 25
From	
Check	17971
Page	360
Page	3
Page	And
Date	12/6/88
Date	12/10/88
By	S. Kimberly

9003070098 B90127  
REG I LIC30 PDR  
18-28017-01

OFFICIAL RECORD COPY ML 10

109729

11 OCT 1988

Is:

"Individuals responsible for the Radiation Safety Program:  
Mrs. Delores A. Brunette-Radiation Safety Officer/NDT  
Level II  
Mr. Jacques Millette-Safety Officer/Alternate Radiation  
Safety Officer".

TRAINING AND EXPERIENCE:

Delete information concerning Mr. Estabrook and Mr. Newton.

Insert:

"Mrs. Delores A. Brunette, Radiation Safety Officer. Mrs. Brunette has been employed by FMI as a Radiographer since 29 April 85, receiving her FMI level II certification 28 May 1985. Educated as a Radiologic Technologist, she has had over 19 years of operating experience as both a medical and industrial radiologist in the use of gamma sources as well as x-ray sources. Her resume, training and work experience is included in Appendix II.

Mr. Jacques Millette has been employed by FMI since 1980. During that period, he has been assigned to every manufacturing section of the company at all levels. In February, 1988, he was appointed as the Safety Officer/Alternate Radiation Safety Officer for FMI. His resume, training and work experience is included in Appendix II.

Was:

"Leak testing will be done by either Mr. Estabrook or Mr. Newton using a leak test kit supplied by Amersham-Tech Ops."

Is:

"Leak testing will be done by either Mrs. Brunette or Mr. Millette using a leak test kit supplied by Amersham-Tech-Ops.

SECTION 8.

Was:

"Equivalent training will be given to future employees by David L. Newton, the Alternate Radiation Safety Officer."



Is:

"Equivalent training will be given to future employees by Delores A. Brunette, the Radiation Safety Officer."

SECTION 9.

Subsection 9.6

Was:

"The persons to be notified in case of emergency are:

Donald J. Estabrook  
207 737-8242

David L. Newton  
207 282-5911

The individual that will notify the NRC of any emergency situation will be Donald J. Estabrook."

Is:

"The persons to be notified in case of emergency are:

Delores A. Brunette  
207 883-9031

Jacques Millette  
207 282-1337

The individual that will notify the NRC of any emergency situation will be Jacques Millette."

SECTION 10.

Subsection 10.4-Leak Testing

Was:

"The individual responsible for taking the samples will be:

Donald J. Estabrook  
Safety Manager/Radiation Safety Officer."

Is:

"The individual responsible for taking the samples will be:

Delores A. Brunette  
Radiation Safety Officer

U. S. Nuclear Regulatory Commission  
Page 4  
14 September 88

Subsection 10.5-Lock Out Procedure

Was:

"The individual responsible for ensuring that the lock-out procedures are followed will be

Donald J. Estabrook  
Safety Officer/Radiation Safety Officer".

Is:

"The individual responsible for ensuring that the lock-out procedures are followed will be

Delores A. Brunette  
Radiation Safety Officer".

If there are any questions, please let me know.

Sincerely,

FIBER MATERIALS, INC.

*J. Douglas Brownrigg*  
J. Douglas Brownrigg  
Division Manager, EMTL

JDB



APPENDIX I

APPLICATION INFORMATION

FOR

U. S. NUCLEAR REGULATORY COMMISSION

INVOLVING

ARGUS 200 GAMMA GAUGE

5. Radioactive Material: Cobalt-60, 100 milliCuries

Source Model Designation: Amersham Capsule type X.44, ANSI-C63434,  
source code CKC.27.

Gamma Gauge Identification: ARGUS-200 Custom Gamma Gauge.

6. Purpose for use of licensed material:

The ARGUS-200 Gamma Gauge is a computer controlled system for measuring the mass, volume, and density of carbon-carbon composite billets of various size using the technique of gamma-ray transmission.

The ARGUS-200 system is composed of three major subsystems, mechanical, electrical, and computer.

The mechanical subsystem is composed of three major systems: the source housing and beam collimator, the sample chamber and mechanical transport system, and the detector housing and collimator.

The electrical subsystem is composed of several major systems, including: the NaI detector, power supplies, charge digitizer, the mechanical transport control system, and the weight scale.

The computer subsystem is the control center for the ARGUS-200. The computer originates and monitors all system functions. The computer is an IBM PC with 256K of RAM and two floppy disk drives.

7. Individuals responsible for the Radiation Safety Program:

Mr. Donald J. Estabrook - Safety Manager/Radiation Safety Officer

Mr. David L. Newton - Alternate Radiation Safety Officer/NDT Level III.

Training and Experience:

Mr. Donald J. Estabrook, Radiation Safety Officer. Mr. Estabrook received his radiation safety training from IRT Corporation in San Diego, California. The 20 hour course was conducted during the week of December 7, 1986, and was taught by Mr. Paul R. Maschka, Radiation Safety Officer for IRT Corporation, NRC License SNM-1405. The outline of the course is included in Appendix I. Mr. Estabrook completed the course and successfully passed the exam. His resume, training and work experience is included in Appendix II.

Mr. David L. Newton, Alternate Radiation Safety Officer. Mr. Newton received his radiation safety training while attending the U.S.A.F. Non-Destructive Testing course at

Chanute AFB, IL, during the period 6/67 to 9/67. His resume, training and work experience is included in Appendix II.

The installation, initial radiation survey, gauge relocation, and removal from service will be done by the manufacturer, IRT Corporation. Leak testing will be done by either Mr. Estabrook or Mr. Newton using a leak test kit supplied by Amersham-Tech-OPS.

8. All personnel who will operate the gauge will attend the training and instruction given by the manufacturer, IRT Corporation, at the time of installation. Equivalent training will be given to future employees by David L. Newton, the Alternate Radiation Safety Officer. The outline of the equivalency training is included in Appendix III.

9. Facilities and Equipment

9.1 Attached is a sketch of the location of the gauge within the facility..

9.2 The environmental conditions of the area in which the gauge is to be located is continuously controlled to maintain an ambient temperature of  $75^{\circ}\text{F} \pm 10^{\circ}\text{F}$  and a relative humidity of  $50\% \text{ RH} \pm 10\% \text{ RH}$ . The area is maintained free from corrosive atmosphere and vibration.

9.5 Maintenance and tests for proper operation of the gauge shall be conducted on a semi-annual basis and includes:

- a. the semi-annual source leak test
- b. check for proper operation of the shutter
- c. check for proper operation of the sample loading door
- d. check for proper operation of the X-Y table
- e. check that the labels are legible and visible.

9.6 Emergency procedures - There are a number of safety features built into the ARGUS-200 gamma gauge that effectively protect personnel from exposure to the radiation from the source.



- a. The source is a special form source that is bolted into a lead filled steel holder.
- b. The holder is mounted in the source housing and surrounded by at least six inches of lead.
- c. The source housing is made of steel plates bolted to the steel support structure.
- d. The beam shutter is a lead filled steel cylinder, 5" diameter by 2.5" thick, this cylinder rides on oil impregnated bronze bushings.
- e. The source never moves and the beam shutter does not touch the source.
- f. The beam shutter is fastened to the sample loading door with a push rod and bell crank in such a way that the shutter is turned 90 degrees whenever the door is opened.

In order to bypass any of these safety features someone would have to use tools to disassemble the unit.

This device is constructed of rugged materials and has no intricate or fragile components except the detector which is protected by the lead collimator. Under normal usage there is no feasible mechanism for dislodging the source or the shielding such that the source would be completely exposed. The source is protected and has only one direct access opening, the 1/4-inch diameter collimator, and this occurs only when the collimator is in the operate position. There is no credible mechanism for materials to penetrate this opening. There is only one way to get at the source and that is to remove the steel skin, the steel plate and the lead bricks behind the source.

The most serious emergency conditions would be a leaking source. If the semi-annual leak test shows a leaking source, the sample chamber door will be closed and sealed shut, the source manufacturer and the gauge



manufacturer will be immediately contacted for advice and assistance. The U.S. NRC Region I will also be notified.

The area in which the equipment will be located is a securable restricted access area. The persons to be notified in case of emergency are:

Donald J. Estabrook  
207 737-8242

David L. Newton  
207 282-5911

The individual that will notify the NRC of any emergency situation will be Donald J. Estabrook.

#### 10. Radiation Safety Program

10.1 Service Operations - The installation of the ARGUS-200 and the ARGUS-200 operators desk will be performed by IRT Corporation (equipment manufacturer), California License No. 2468-80. IRT Corporation will perform the initial radiation survey and leak testing. Maintenance and device relocation/removal will be performed by IRT Corporation (equipment manufacturer) on an as-needed basis.

10.2 Personnel Monitoring Equipment - All employees involved in the operation of the ARGUS-200 will be required to wear personnel monitoring equipment, i.e., film badges. The film badges will be replaced monthly. The exposed badges will be sent to

R. S. Landauer Jr. and Co.  
2 Science Road  
Glenwood, IL 60425-1586

for developing, analysis, and a report returned to Fiber Materials, Inc., to be maintained on file indefinitely.

Visitors to the ARGUS-200 operation will be required to wear a self-reading pocket dosimeter prior to entry into and during the term of the visit at the ARGUS-200 operation area. The dosimeter will be read, issued, and logged in by the ARGUS operator prior to entry into the restricted area. Upon completion of the visit to the ARGUS-200 operation area, the operator will collect, read, and log the reading of each dosimeter.

- 10.3 Radiation Detection Instruments - Radiation surveys will be conducted on a quarterly basis to evaluate the extent of radiation hazards that may be present. Fiber Materials, Inc., will have available, for use, a calibrated, operable survey meter that can measure at least one (1) through 200 milliroentgens per hour.

The instrument will

1. be calibrated so that readings are  $\pm 20\%$  of the actual values over the range of the instrument,
2. have a calibration chart or graph that shows the results of the calibration, the date of the last calibration, and the due date for the next calibration affixed to the survey meter, and
3. be calibrated at least semi-annually and after servicing.

Calibration of the survey meter will be performed by:

Quality Assurance Labs, Inc.  
80 Pleasant Avenue  
South Portland, ME 04102  
NRC License No. 18-19078-01

All calibration records will be kept on file for a minimum of two (2) years after each calibration.



10.4 Leak Testing - Fiber Materials, Inc., will perform leak testing from the sealed source at six-month intervals. The commercial leak test kit will be supplied by

Amersham-Tech-OPS RPD  
40 North Avenue  
Burlington, MA 01803  
KIT No. TECH-OPS 518  
NRC License No. 20-1283601

The individual responsible for taking the samples will be

Donald J. Estabrook  
Safety Manager/Radiation Safety Officer

10.5 Lock-out procedures - During normal operations the radiation dose on the outside of the device is less than 0.5 mr/hr (measured 0.2 mr/hr) with or without a sample in the chamber.

The inspection chamber is too small for a person to enter and the 1/4-inch diameter beam could not expose a major portion of an employee's body. The only portion of a person's body that could be exposed to high doses of radiation would be the hands and then only if the push rod were disconnected from the door with the door in the closed position.

#### LOCK-OUT PROCEDURES

DO NOT disconnect the push rod from the door with the door in the closed position, because the shutter is OPEN and the radiation beam is entering the sample chamber.

PRIOR to opening the detector cabinet, open the sample chamber door and secure it in the open position; this rotates the shutter and turns the radiation beam "off."

The lock-out procedure will be provided to all operating personnel of the ARGUS-200 gauge, and the procedures will be posted so that personnel can see them.

The individual responsible for ensuring that the lock-out procedures are followed will be

Donald J. Estabrook  
Safety Manager/Radiation Safety Officer

10.6 Performance of Services - Maintenance and service of the device will be performed by the manufacturer until such time that our personnel feel confident that they can do the operation safely. Maintenance and servicing of the device will only be done following the written procedures provided by the manufacturer.

10.7 Waste Management - There will be no waste associated with this device other than the radioactive source. When the source has decayed to levels too low to be useful, it will be returned to either the device manufacturer, the source manufacturer, or some other properly licensed entity.



APPENDIX II

RESUMES

OF

DELORES A. BRUNETTE

AND

JACQUES MILLETTE

RESUME  
OF  
TRAINING AND WORK EXPERIENCE

Delores A. Brunette

Synopsis of Radiography History

Educational Background

- o St. Mary's Hospital, School of Radiologic Technology,  
Lewiston, ME -  
From June 1967 to June 1969  
Awarded degree of Radiologic Technologist R.T.
- o The Technical Training Center,  
Hartford, CT -  
Completed Radiography Level II Course, May 1985
- o Quality Assurance Labs  
80 Pleasant Avenue  
So. Portland, ME -  
Completed Radiography Level II Course  
Reference SNT-TC-1A (84) QAL Manual M1109 - 12/4/81

Licensure and Certifications

- o N.R.C. License #18-19078-01  
Licensed as a Radiographer to use Isotope Sources:  
Ir<sup>192</sup>  
Co<sup>60</sup>  
Co<sup>60</sup> Calibration Source
- o A.R.R.T. - American Registry of Radiologic
- o Maine State License
- o Industrial Radiography Level II Certification

Radiation Safety Related Course Work

- o Radiation Protection (Health Physics) 5 hours
- o Radiography Level II Course  
The Technical Training Center
- o Radiography Level II Course  
Quality Assurance Labs



## Work History

### o Leak Tests

Performed Leak Testing to:

Ir<sup>192</sup>

Co<sup>60</sup>

Co<sup>60</sup> Calibration Source, Model 571

### o Survey Meter Calibration

Performed quarterly survey meter calibration to Model 492 using Radioisotope Source Co<sup>60</sup> Mode 571 - From 1983 to 1985

### o Isotope Related Work

Ir<sup>192</sup>

Performed industrial radiography using Ir<sup>192</sup> Model 660 on a daily basis.

Co<sup>60</sup>

Performed Industrial radiography Occasionally using Co<sup>60</sup> from 1981 to 1985.

Co<sup>60</sup>

Performed radiation therapy treatments to patients using a Medical Co<sup>60</sup> Therapy Machine. St. Mary's Hospital - 3 month duration.

<sup>99</sup>Te - Radionuclide

Work involved calculating Isotope dosage against activity, administering Isotope intravenously, and performing brain scans to patients. From 1976 to 1978 - Webber Hospital.

<sup>131</sup>I - Radionuclide

Work involved calculating Isotope dosage against activity, administering Isotope intravenously, and performing thyroid scans to patients. From 1976 to 1978 - Webber Hospital

o . X-Ray Equipment

Industrial X-Ray Machines

250 kv - Andrex Unit  
100 kv - Picker Unit  
300 kv - Sperry Unit  
200 kv - Sperry Unit  
420 kv - Philips Unit  
320 kv - Philips Unit

from 1979 to present

o Medical X-Ray Machines (Diagnostic)

200 kv up to 800 kv Units  
50 kv and 100 kv - Portable Units  
Fluoroscopy Units (Real Time Imaging)  
with cine  
Picker, Semen  
Tomography Equipment  
Picker  
Special Procedure, Rapid Film Changer  
Picker  
Neumoencephalogram Chair  
Mastoid and Sinus Head Unit

from 1967 to 1978



JACQUES MILLETTE

POSITION: Safety Officer

EDUCATION: St. Louis High School  
St. Francis College/Gorham State  
B.A. English 1971  
Continuing Education Courses/Seminars  
RE: OSHA Regulations - U.S.M.

EXPERIENCE: Mr. Millette joined Fiber Materials, Inc., in 1980 as an Assistant Crew Chief in Graphitization. In this capacity he supervised the department's daily activities.

In late 1985 he transferred to the position of Night Plant Supervisor. Responsibilities included building security and night production. Between the aforementioned period and Spring of 1988, his role with Fiber Materials, Inc. changed on several occasions to include the following positions: General Foreman, Production Expediter and Special Project Expediter.

Since Spring of 1988 he has performed as Safety Officer and is responsible for all Safety operations including OSHA regulations.

Prior to joining Fiber Materials, Inc., Mr. Millette was employed by the City of Biddeford Parks and Recreation Dept.

109729

OFFICIAL RECORD COPY ML 10

11 OCT 1988

(FOR LFMS USE)  
INFORMATION FROM LTS

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM  
AND  
REGIONAL LICENSING SECTIONS

PROGRAM CODE: 03120  
STATUS CODE: 0  
FEE CATEGORY: 3P  
EXP. DATE: 19920930  
FEE COMMENTS:

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED

APPLICANT/LICENSEE: FIBER MATERIALS, INC.  
RECEIVED DATE: 881011  
DOCKET NO: 3029940  
CONTROL NO.: 109729  
LICENSE NO.: 18-28017-01  
ACTION TYPE: AMENDMENT

2. FEE ATTACHED

AMOUNT: \$ 0.00  
CHECK NO.: 0000

3. COMMENTS

SIGNED R. J. Brown  
DATE 88-10-20

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED 1-1)

1. FEE CATEGORY AND AMOUNT: 3P \$60

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:

AMENDMENT \_\_\_\_\_  
RENEWAL \_\_\_\_\_  
LICENSE \_\_\_\_\_

3. OTHER \_\_\_\_\_

SIGNED S. Kumbhkar  
DATE 12/6/88