



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

(FSME-13-050, May, Training, H-315)

May 22, 2013

ALL AGREEMENT STATES

**ACCEPTANCE TO THE IRRADIATOR TECHNOLOGY COURSE (H-315) (FSME-13-050)**

**PURPOSE:** To provide the list of students selected for the Irradiator Technology Course (H-315).

**BACKGROUND:** The U.S. Nuclear Regulatory Commission (NRC) provides the list of students and instructions to the States to help ensure that States with candidates on waiting lists will have an opportunity to fill vacated slots that may open up after this notification letter has been sent.

**DISCUSSION:** Enclosure 1 is the list of students from the Agreement States selected to attend the July 15-19, 2013, Irradiator Technology Course (H-315). Please provide the list of students and the instructions (Enclosure 2) to each individual from your program that is on the list. Enclosed for your information is a tentative schedule for the course (Enclosure 3). Students attending this course will be paid lodging and per diem by the (NRC). Students should immediately make their travel arrangements through Carlson Wagonlit Travel at 1-800-453- 8396 and then download the Travel Application Form at <http://nrc-stp.ornl.gov/training.html>. The completed form should be sent to [Brenda.Usilton@nrc.gov](mailto:Brenda.Usilton@nrc.gov) (preferred method) or by fax to 301- 415-3502 for the NRC to issue the students travel authorization.

We ask that you inform us of any cancellations 30 days prior to the course starting date or as soon as you are aware that the student cannot attend the course.\*

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\*This information request has been approved by OMB 3150-0029 expiration 11/30/2013. The estimated burden per response to comply with this voluntary collection is approximately 8 hours. Send comments regarding the burden estimate to the Records and FOIA/Privacy Services Branch (T-5F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to [infocollects@nrc.gov](mailto:infocollects@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-1 0202 (31 50-0029), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

If you have any questions regarding this correspondence, please contact me at 301-415-3340 or the individual named below.

POINT OF CONTACT: Brenda G. Usilton  
TELEPHONE: (301) 415-2348

INTERNET: [Brenda.Usilton@nrc.gov](mailto:Brenda.Usilton@nrc.gov)  
FAX: (301) 415-3502

**/RA/Pamela Henderson for/**

Brian J. McDermott, Director  
Materials Safety and State Agreements  
Office of Federal and State Materials  
and Environmental Management Programs

Enclosures:

1. List of students
2. Instructions
3. Tentative schedule

IRRADIATOR TECHNOLOGY COURSE (H-315)  
July 15-19, 2013  
LAVAL, CANADA

STATE	STUDENT(S)
<b>ARKANSAS</b> Dept. of Health 4815 W. Markham St., Slot 30 Little Rock, AR 72205-3867	Robert Layne Pemberton
<b>NEW JERJSEY</b> Dept. of Environmental Protection P.O. Box 420 Trenton, NJ 08625-0420	James McCullough
<b>NEW YORK STATE HEALTH</b> Empire State Plaza Corning Tower 12 <sup>th</sup> Floor Albany, NY 12237	Brajesh Kothari
<b>SOUTH CAROLINA</b> Dept. of Health & Environmental Control 2600 Bull Street Columbia, SC 29201	Leland Cave
<b>TEXAS</b> Dept. of State Health Services P.O. Box 149347 Austin, TX 78714-9347	Shawn Garza

## INSTRUCTIONS TO STUDENTS

**ACCEPTANCE:** This is to advise you that those individuals in Enclosure 1 have been accepted for participation in the training course (H-315), Irradiator Technology. This course is scheduled to be presented by MDS Nordion July 15-19, 2013, at the Canadian Irradiation Centre (CIC), 535 Boulevard Cartier, Laval, Quebec, Canada, H7V 3S8, Contact: Mr. Yves Doyle, MDS Nordion, work - 450-687-5165, cell phone - 613-697-9837. Maps of the area can be found at [www.cic.nordion.com](http://www.cic.nordion.com).

**COURSE:** This course will be conducted beginning on July 15, 2013 at 9:00 a.m. and end at 5:00 p.m. each day except for Friday, July 19, 2013, when the class is scheduled to end between 1:30-2:30 p.m. Travelers will need a passport to enter into Canada.

**LODGING & TRAVEL:** You should plan to arrive on Sunday, July 14, 2013, and depart on Friday, July 19, 2013. Participants must make their own lodging and travel arrangements. Individuals should request a government rate at the hotels. If traveling by air, you need to contact Carlson Travel at 1-800-453-8396 for airline reservations. The per diem for the area is \$158 for lodging, \$117 for meals and incidents, not to exceed \$275. No rental cars will be issued. Effective January 1, 2013, the mileage rate increased to 56.5 cents per mile. Please complete the Travel Application Form which is located at <http://nrc-stp.ornl.gov/training.html>. You can also go to the same Web site to receive a copy of the travel instructions and voucher for reimbursement. Please return the travel form to Brenda Usilton by email (preferred method) or fax (301) 415-3502. If you have any questions regarding the form contact Brenda Usilton at [Brenda.Usilton@nrc.gov](mailto:Brenda.Usilton@nrc.gov) or 301-415-2348. Cellular phones and similar devices with audible capability should be disabled while classes are in session. Normal office/business attire is appropriate for students attending training. Individuals should make a reservation at one of the following hotels. The cost of a taxi from the airport is around \$35.00-\$50.00 Canada. It takes approximately 30 minutes to travel from the CIC to Dorval Airport.

Below are a number of hotels in the area. Room reservations can be made at the Sheraton Laval Hotel, 2440, Autoroute des Laurentides, Laval, Tel. 800-667-2440 or 450-687-2440. This is normally the preferred place to stay and overall best value. The hotel is located across from a shopping mall. Please make sure to ask for the MDS Nordion special rate when you call. Other local hotels are:

Hilton Laval\*\*\*\*

2225, Autoroute des Laurentides

Laval

Tel. 800-363-7948

[www.hilton-laval.com](http://www.hilton-laval.com)

Radisson Hotel Laval\*\*\*\*

2900 boul. Le Carrefour

Laval

Tel. 800-333-3333

[www.radisson.com/laval.ca](http://www.radisson.com/laval.ca)

Comfort Inn\*\*\*

2055 Autoroute des Laurentides

Laval

Tel. 800-267-3837

[www.choicehotels.ca/cn331](http://www.choicehotels.ca/cn331)

ENCLOSURE G

## Irradiator Technology Course Schedule

### **DAY 1**

#### **Session 1**

9:00-10:15

#### **Introduction**

- Welcome
- Preliminary tour of IR-147

10:15-10:30

COFFEE BREAK

#### **Session 2**

10:30-11:30

#### **Industrial Irradiators**

- Types
- Components
- Design principles
- Touchti me
- PLC

#### **Session 3**

11:30-12:00

#### **Research Irradiators**

- Types
- Design

12:00-1:00

LUNCH

#### **Session 3**

1:00-1:30

#### **Research Irradiators (continued)**

- Use
- Inspections (hands-on)

#### **Session 4**

1:30-2:30

#### **Cobalt-60**

- Cobalt-60
- Product of Co-60
- Transportation of Co-60
- Handling of Co-60

#### **Session 5**

2:30-3:15

#### **Source Loading**

- What every operator should know
- Handling tools
- Typical loading
- Source loading procedure

3:15-3:30

COFFEE BREAK

#### **Session 6**

3:30-5:00

#### **Operation of Industrial Irradiators (Hands-on)**

- Operating modes
- Sequence diagram
- PLC

### **DAY 2**

#### **Session 7**

9:00 - 10:00

#### **Safety Systems & Features**

- Fault indicators

10:00-10:15

COFFEE BREAK

10:15-11:00

#### **Safety Systems & Features (continued)**

- Caution indicators
- Safety features
- Hands-on review of safety systems

#### **Session 8**

11:00-12:00

#### **Walk-through Inspection (hands-on)**

- A complete safety inspection is performed

12:00-1:00

LUNCH

1:00-2:00

Walk-through Inspection (hands-on) (continued)

- A complete safety inspection is performed

**Session 9**  
2:00-3:15

**Irradiator Maintenance**  
-Control room organization  
-Equipment maintenance  
-Electrical/Mechanical  
-Safety checks

3:15-3:30  
**Session 10**  
3:30-5:00

COFFEE BREAK  
**Good Manufacturing Practices**  
-Standard Operating Procedures  
-Following product from receiving to shipping

**DAY 3**  
8:00

**Session 11**  
All  
day

Leave Laval for Kanata  
Tour of a cobalt-60 product facility  
Storage pool  
-Hot cells  
-Encapsulation  
-Leak testing  
-F-168 container  
-Transportation

12:00-1:30  
**Session 12**  
1:30-3:00  
3:00-6:00

LUNCH  
**Tour of a Molybdenum 90 Product Facility**  
-Guided tour of the MDS Nordion Molybdenum 90 product facility  
-Return to Laval

**DAY 4**

**Session 13**  
9:00-10:00  
10:00-10:15

**Emergency Procedures**  
-Procedures as required by 10 CFR36  
COFFEE BREAK

**Session 14**  
10:15-10:45

**Wipe test (Hands-on)**  
-A source rack wipe test is performed

**Session 15**  
10:45-11:15

**Radiation Safety Officer and Operator responsibilities**  
-Maintenance records  
-Irradiation log book  
-Visitor records

**Session 16**  
11:15-12:15  
12:15-1:15

**Radiation Survey (hands-on)**  
-A radiation survey of biological shield is performed  
LUNCH

**Session 17**  
1:15-2:00

**Incidents**  
-Incidents at irradiation facilities

**Session 18**  
2:00-3:15

**Dosimetry (hands-on)**  
-Types of dosimeters  
-Characteristics  
-Reading equipment

3:15-3:30  
**Session 19**  
3:30-5:00

COFFEE BREAK  
**Regulations**  
-USNRC regulations 10 CFR36

**DAY 5**

**Session 19**

8:15-9:15

**Regulations (continued)**

- Regulatory Guide 8-13
- Regulatory Guide 8-29
- IAEA guidelines
- ANSI standards

**Session 20**

9:15-9:45

**Licensing**

- USNRC Guide NUREG 1556 Vol. 6
- Security Update

9:45-10:00

COFFEE BREAK

**Session 21**

10:00-11:15

**Audit**

- Audit of radiation safety procedures, operational procedures and safety systems

**Session 22**

11:15-11:30

**Review**

- Discussion

**Session 23**

11:30-1:30

**Examination**

- Written test

Note:

All hands-on exercises are carried out using a full scale commercial irradiator and two research irradiators. Dosimetry exercises are possible in our dosimetry laboratory which currently handles 7 of the most used dosimetry systems in the world.