



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

(FSME-14-027, March, Training, H-315)

March 14, 2014

ALL AGREEMENT STATES

ACCEPTANCE TO THE IRRADIATOR TECHNOLOGY COURSE (H-315) (FSME-14-027)

**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 May 12-16, 2014, 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. This course is scheduled to be presented by MDS Nordion, at the Canadian Irradiation Centre (CIC), 535 Boulevard Cartier, Laval, Quebec, Canada, H7V 3S8. 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 [Astrainingandtravel.Resource@nrc.gov](mailto:Astrainingandtravel.Resource@nrc.gov). Information should not be sent directly to Ms. Brenda Usilton. In addition, we are requesting that you do not send any training applications, travel forms and vouchers by fax. Processing of your requests sent by fax could result in significant delays.

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 previously been approved by OMB 3150-01029 and was resubmitted to OMB for review of continued approval of information collection. 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 Information Services Branch (T-5F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to [infocollects.resource@nrc.gov](mailto:infocollects.resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0200), 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: Ms. Brenda G. Usilton  
TELEPHONE: (301) 415-2348

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

**/RA Janine Katanic for/**

Laura A. Dudes, 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) May 12-16, 2014 LAVAL, CANADA

| STATE  | STUDENT(S)         |
|--|--------------------|
| <b>ARKANSAS</b><br>Dept. of Health<br>4815 W. Markham St., Slot 30<br>Little Rock, AR 72205-3867                                       | Kayla Avery        |
| <b>FLORIDA</b><br>Dept. of Health<br>4052 Bald Cypress Way, Bin C21<br>Tallahassee, FL 32399-1741                                      | Frantz Nicoleau    |
| <b>ILLINOIS</b><br>Bureau of Radiation Safety<br>1035 Outer Park Drive<br>Springfield, IL 62704  | Whitney Cox        |
| <b>NEW MEXICO</b><br>Radiation Control Bureau<br>Environment Dept.<br>P.O. Box 5469<br>Santa Fe, NM 87502-5469                         | Santiago Rodriguez |
| <b>PENNSYLVANIA</b><br>Bureau of Radiation Protection<br>Rachel Carson State Office Bldg<br>P.O. Box 8469<br>Harrisburg, PA 17105-8469 | Jennifer Noll      |

## 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 on May 12-16, 2014, 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.nordion.com/gce](http://www.nordion.com/gce).

**COURSE:** This course will be conducted beginning on May 12, 2014, at 9:00 a.m. and end at 5:00 p.m. each day except for Friday, May 16, 2014, when the class is scheduled to end between 1:30-2:30 p.m. You will be expected to remain until the course is completed. If you have any significant medical or family issues that might preclude you from remaining until the course is completed please notify Ms. Usilton prior to the start date of the course. Travelers will need a passport to enter into Canada.

**LODGING & TRAVEL:** You should plan to arrive on Sunday, May 11, 2014, and depart on Friday, May 16, 2014. Participants must make their own lodging and travel arrangements. Individuals should request a government rate at the hotels. Below are a number of hotels in the area. The per diem for the area is \$150 for lodging, \$112 for meals and incidents, not to exceed \$262. Effective January 1, 2014, the mileage rate increased to 56 cents per mile. If traveling by air, you need to contact Carlson Wagonlit Travel at 1-800-453-8396 for airline reservations. Please complete the Travel Application Form which is located at <http://nrc-stp.ornl.gov/training.html>. You can also go to the same website to receive a copy of the travel instructions and voucher for reimbursement. Please return the travel form to [ASTrainingandtravel.Resource@nrc.gov](mailto:ASTrainingandtravel.Resource@nrc.gov) and if you have any questions regarding the form contact Ms. Usilton at [Brenda.Usilton@nrc.gov](mailto:Brenda.Usilton@nrc.gov) or call 301-415-2348. No rental cars will be authorized for travel. 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. It takes approximately 30 minutes to travel from the CIC to Dorval Airport.

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\*\*\*\*  
225, Autoroute des Laurentides  
Laval  
Tel: 800-363-7948  
[www.hilton-laval.com](http://www.hilton-laval.com)

Comfort Inn  
2055 Autoroute des Laurentides  
Laval  
Tel: 800-267-3837  
[www.choicehotels.ca/cn331](http://www.choicehotels.ca/cn331)

Radison Hotel Laval\*\*\*\*  
2900 boul. Le Carrefour  
Laval  
Tel: 800-333-3333  
[www.radison.com/laval.ca](http://www.radison.com/laval.ca)

## **Irradiator Technology Course Schedule**

### **DAY 1**

|                  |  |
|------------------|--|
| <b>Session 1</b> | <b>Introduction</b>  |
| 9:00-10:15       | -Welcome<br>-Preliminary tour of IR-147  |
| 10:15-10:30      | COFFEE BREAK   |
| <b>Session 2</b> | <b>Industrial Irradiators</b>  |
| 10:30-11:30      | -Types<br>-Components<br>-Design principles<br>-Touchtime<br>-PLC                                    |
| <b>Session 3</b> | <b>Research Irradiators</b>  |
| 11:30-12:00      | -Types<br>-Design  |
| 12:00-1:00       | LUNCH  |
| <b>Session 3</b> | <b>Research Irradiators (continued)</b>  |
| 1:00-1:30        | -Use<br>-Inspections (hands-on)  |
| <b>Session 4</b> | <b>Cobalt-60</b>   |
| 1:30-2:30        | -Cobalt-59<br>-Product of Co-60<br>-Transportation of Co-60<br>-Handling of Co-60                    |
| <b>Session 5</b> | <b>Source Loading</b>  |
| 2:30-3:15        | -What every operator should know<br>-Handling tools<br>-Typical loading<br>-Source loading procedure |
| 3:15-3:30        | COFFEE BREAK   |

**Session 6                      Operation of Industrial Irradiators (Hands-on)**

3:30-5:00                      -Operating modes  
   -Sequence diagram  
   -PLC

**DAY 2**

**Session 7                      Safety Systems & Features**

9:00 - 10:00                      -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                      Walk-through Inspection (hands-on)**

11:00-12:00                      -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                      Irradiator Maintenance**

2:00-3:15                      -Control room organization  
   -Equipment maintenance  
   -Electrical/Mechanical -  
   Safety checks

3:15-3:30                      COFFEE BREAK

**Session 10                      Good Manufacturing Practices**

3:30-5:00                      -Standard Operating Procedures  
   -Following product from receiving to shipping

### **DAY 3**

8:00 Leave Laval for Kanata

#### **Session 11 Tour of a cobalt-60 product facility**

All day -Storage pool  
-Hot cells  
-Encapsulation  
-Leak testing  
-F-168 container  
-Transportation

12:00-1:30 LUNCH

#### **Session 12 Tour of a Molybdenum 90 Product Facility**

1:30-3:00 -Guided tour of the MDS Nordion Molybdenum 90 product facility

3:00-6:00 -Return to Laval

### **DAY 4**

#### **Session 13 Emergency Procedures**

9:00-10:00 -Procedures as required by 10 CFR36

10:00-10:15 COFFEE BREAK

#### **Session 14 Wipe test (Hands-on)**

10:15-10:45 -A source rack wipe test is performed

#### **Session 15 Radiation Safety Officer and Operator responsibilities**

10:45-11:15 -Maintenance records  
-Irradiation log book  
-Visitor records

#### **Session 16 Radiation Survey (hands-on)**

11:15-12:15 -A radiation survey of biological shield is performed

12:15-1:15 LUNCH

**Session 17**                    **Incidents**  
1:15-2:00                    -Incidents at irradiation facilities

**Session 18**                    **Dosimetry (hands-on)**  
2:00-3:15                    -Types of dosimeters  
                                     -Characteristics  
                                     -Reading equipment

3:15-3:30                    COFFEE BREAK

**Session 19**                    **Regulations**  
3:30-5:00                    -USNRC regulations 10 CFR36

**DAY 5**

**Session 19**                    **Regulations (continued)**  
8:15-9:15                    -Regulatory Guide 8-13  
                                     -Regulatory Guide 8-29  
                                     -IAEA guidelines  
                                     -ANSI standards

**Session 20**                    **Licensing**  
9:15-9:45                    -USNRC Guide NUREG 1556 Vol. 6  
                                     -Security Update  
9:45-10:00                    COFFEE BREAK

**Session 21**                    **Audit**  
10:00-11:15                    -Audit of radiation safety procedures, operational  
                                     procedures and safety systems

**Session 22**                    **Review**  
11:15-11:30                    -Discussion

**Session 23**                    **Examination**  
11:30-1:30                    -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.