



PLYMOUTH TUBE CO [®] USA

Plymouth Tube Company
572 W. SR 14
Winamac, IN 46996

October 5, 2004

Ms Toye Simmons
US NRC
Region III
Licensing Group
2443 Warrenville Rd
Lisle, IL 60532-4352

Dear Toye:

As you requested, Plymouth Tube is amending license #13-32528-01 to delete Susan Engelhardt as the Radiation Safety Officer and add Mr. Ray Spradlin as the RSO. We would also like to add Mr. Robert Curry as the Alternate RSO. These individuals have attended the radiation safety class put on by Engelhardt & Associates, Inc. Copies of the agenda, certificates and exams have been included for both of the afore mentioned individuals. Since there will be no non-routine maintenance on the gauge, this training meets the intent of NUREG 1556-Vol. 4. When the gauge is actually installed in the plant, Ms. Engelhardt will be on site to provide radiation safety training for other personnel that may work on the electronics of the gauge and general awareness training for other personnel who may be in the area of the gauge.

Thank you for your assistance. Please feel free to contact me at 574-946-3125 X222 or Sue Engelhardt at 800-525-3078 if you have questions.

Sincerely,


Robert Curry

Cc: File

OCT 13 2004

Certificate of Completion

awarded to

Ray Spradlin

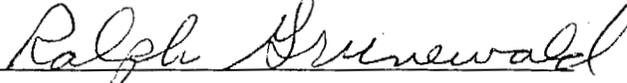
for participation in

Radiation Safety Seminar

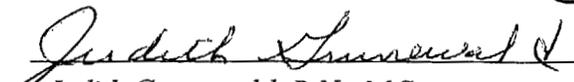
September 13-15, 2004 - New Orleans

presented by Engelhardt & Associates, Inc.


Susan J. Engelhardt, M.S.


Ralph Grunewald, Ph.D.


Joshua Walkowicz, M.S., CHP


Judith Grunewald, R.N., M.S.

Name: Elmer Ray Spradlin II
Date: 9/14/2004

NUCLEAR GAUGE RADIATION SAFETY EXAM

1. True and False

- | | | | |
|----|------------------------------------|------------------------------------|--|
| a. | T | <input checked="" type="radio"/> F | Long term radiation exposure (chronic) is more hazardous to your health than a dose delivered over a short period of time. |
| b. | T | <input checked="" type="radio"/> F | Radiation safety training is recommended but not required for persons working with radiation. |
| c. | <input checked="" type="radio"/> T | F | If a gauge is damaged, it must be assumed that a hazard exists. |
| d. | <input checked="" type="radio"/> T | F | Time, distance and shielding are appropriate methods of radiation protection. |
| e. | T | <input checked="" type="radio"/> F | Survey meters have to be calibrated only when you change the batteries. |
| f. | T | <input checked="" type="radio"/> F | All survey meters operate the same way so it doesn't matter which meter you purchase. |
| g. | T | <input checked="" type="radio"/> F | Any person who has the potential to work with radiation must wear a radiation dosimeter |
| h. | <input checked="" type="radio"/> T | F | Each gauge is designed for a specific purpose so care must be taken before changing location of the gauge |
| i. | T | <input checked="" type="radio"/> F | It is okay to post an area "Caution: Radiation Area," even if the exposure rate is less than 5 mR/Hr. |
| j. | <input checked="" type="radio"/> T | F | Typically, leak tests are performed at 6 month intervals and in some cases, at 3 year intervals |
| k. | <input checked="" type="radio"/> T | F | Loss of a source is reportable to the regulators as soon as one knows its gone |

2. Matching

- | | | | |
|----|---|----------|---------------------|
| a. | Geiger Counter | <u>A</u> | A survey instrument |
| b. | Dosimeter | <u>C</u> | Transmission gauge |
| c. | Measures between source and detector directly | <u>B</u> | Luxel badge |
| d. | Measures source integrity | <u>D</u> | Leak test |

3. Multiple Choice

- a. Radiation survey meters must be calibrated at least every:
- 1). Each three months
 - 2). Each six months
 - 3). Each three years
 - 4). At least annually
- b. Sealed sources must be leak tested at least every:
- 1). Annually
 - 2). Each six months
 - 3). Each three years
 - 4). Leak tests are never required.
 - 5). None of the above
- c. Which of the following materials are suitable as shielding for gamma radiation
- 1). Concrete
 - 2). Lead
 - 3). Steel
 - 4). Water
 - 5). All of the above

- d. The United States Nuclear Regulatory Commission regulates which of the following
- 1) Radioactive materials made in a nuclear reactor
 - 2) X-ray equipment
 - 3) Radioactive materials that are made in a cyclotron
 - 4) None of the above
- e. If an individual were to remain continuously present in a high radiation area of 120 mrem per hour for a period of ten minutes, he/she would receive an exposure of approximately:
- 1.) 0.02 mrem
 - 2.) 2 mrem
 - 3.) 20 mrem
 - 4.) 200 mrem
- f. Which of the following are true about warning lamps on a gauge:
- 1). A red light means that the shutter is open
 - 2). A green light means that the shutter is closed
 - 3). A white/amber light usually means that the gauge is in standby (there is power to the system but the shutter is closed)
 - 4). If none of the indicator lamps are illuminated, one should assume that the shutter is open.
 - 5) All of the above
 - 6). None of the above
- g. How can a nuclear gauge be disposed of:
- 1). Sell to the highest bidder
 - 2). Sell/transfer to a facility with a license to receive the unit
 - 3). Return to the manufacturer
 - 4) Either 2 or 3
 - 5). None of the above
- h. Which of the following environmental conditions may damage a gauge
- 1). Heat
 - 2). Extreme dirt
 - 3). Excessive moisture
 - 4). Vibration
 - 5) All of the above
 - 6). One of the above
- i. Which of the following are considered routine maintenance on a gauge
- 1). Checking the shutter mechanism
 - 2). Standardizing the system
 - 3). Performing lockout/tagout
 - 4) Performing leak tests
 - 5) All of the above
 - 6). None of the above

4. True or False

- a. T F Anyone can install sources into gauge house assemblies
- b. T F Special training is required to perform non-routine maintenance on a gauge.
- c. T F Gauges may be designed for a specific purpose so care must be taken in moving a gauge from one location to another in a plant/mill
- d. T F A sign that says "Caution Radioactive Materials" is posted wherever radioactive materials are used or stored

- e. T F A sign that says "Caution Radiation Area" means that nobody can go into the area because the radiation levels are so high that it will kill you
- f. T F ALARA only applies to Nuclear Power Plants
- g. T F 100 mrem/year is the allowable limit for a radiation worker
- h. T F 5000 mrem/year is the allowable limit for a radiation worker
- i. T F It is okay to post an area with the sign "Caution: High Radiation Area" even if the exposure is less than 100 mrem/hour
- j. T F Security is not an issue with gauges because nobody knows what they are anyway.
- k. T F The Radiation Safety Officer is responsible for the day to day radiation safety program activities, such as audits, training, licensure and such.
- l. T F Management has nothing to do with the operation of the radiation safety program
- m. F T Badges are required when a worker has the potential to exceed 10% of the occupational dose limits
- n. T F ALARA means keeping all radiation exposures as low as reasonably achievable, through employee training and awareness programs, engineering controls and performance based assessment of worker competency with radioactive materials
- o. T F Written radiation safety programs and audits of programs are only required for large users of radioactive materials
- p. T F Inverse square means that as you double the distance from a source of radiation you will decrease the exposure by a factor of 4 (for gamma point sources)
- q. T F Contamination is the presence of radioactive materials where it is not wanted

5. Describe Lock out tag out for a gauge
 Lock shutter closed follow OSHA

6. Describe actions to be taken in the event of an emergency with a gauge
 Move away from source at once, Secure the alarm, Secure the Area, Notify the RSO, Get away from it

7. Matching

- | | |
|---|---|
| a. "Caution Radioactive Material" | <u>D</u> 100mrem/year |
| b. "Caution: High Radiation Area" | <u>E</u> 5000mrem/year |
| c. "Caution Radiation Area" | <u>C</u> 5mR/Hour |
| d. Allowable limit for a member of Public | <u>B</u> 100mR/Hour |
| e. Allowable limit for a radiation worker | <u>A</u> Posted where radioactivity is used or stored |

8. Multiple Choice

- a. Which of the following are non-routine maintenance on a gauge
- 1). Installation
 - 2). Relocation
 - 3). Source installation
 - 4). Repair of the source housing
 - 5). All of the above
 - 6). None of the above

- b. Which of the following apply to restricted areas
- 1). Access is controlled for purposes of radiation protection ✓
 - 2). Area is posted accordingly ✓
 - 3). Access is controlled for whatever reason the plant wants to control it for
 - 4). There is no such thing as a restricted area
 - 5). Two of the above

- c. Which of the following are components of a device registration:
- 1). What the gauge is intended to be used for
 - 2). Conditions under which the gauge can operate
 - 3). Safety evaluation of the gauge including the safety features
 - 4). Engineering properties of the gauge
 - 5). All of the above

9. What is the dose from a 1 Ci Cs-137 source at 1 foot from the source and at 2 feet from the source. Remember that $D = 6CE/\text{distance squared}$
- D = Dose in R/Hr.
 C = Activity in Curies
 E = Energy in MeV (for Cs-137 this is .662MeV)

(A) 3.97 R/hr (a) .993 R/hr

$$\frac{(6)(1)(.662)}{1 \text{ ft}^2}$$

$$2 / 2^2$$

$$\frac{(6)(1)(.662)}{1}$$

3.97 R/hr

$$\frac{(6)(1)(.662)}{4}$$

.993 R/hr

Sep 29 04 10:03a

ENGELHARDT & ASSOC. INC. 608-224-0821

P. 2

Certificate of Completion

awarded to

Robert G. Curry

for participation in

Radiation Safety Seminar

September 13-15, 2004 - New Orleans

presented by Engelhardt & Associates, Inc.

Susan J. Engelhardt
Susan J. Engelhardt, M.S.

Ralph Grunewald
Ralph Grunewald, Ph.D.

Joshua Watkowitz
Joshua Watkowitz, M.S., CHP

Judith Grunewald
Judith Grunewald, R.N., M.S.

Name: ROBERT CURRY
Date: SEPT 14 2004

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- e. T F Survey meters have to be calibrated only when you change the batteries.
- f. T F All survey meters operate the same way so it doesn't matter which meter you purchase.
- g. T F Any person who has the potential to work with radiation must wear a radiation dosimeter
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2. Matching

- a. Geiger Counter A A survey instrument
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- c. Measures between source and detector directly B Luxel badge
- d. Measures source integrity D Leak test

3. Multiple Choice

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5. Describe Lock out tag out for a gauge

LOCK OUT AND TAG GAUGE TO TAKE GAUGE OFF LINE AND TO THE PERSON'S TAKING THE GAUGE OFF LINE.

6. Describe actions to be taken in the event of an emergency with a gauge

MOVE AWAY FROM GAUGE
SOUND ALARM
SECURE AREA
NOTIFY TSO

7. Matching

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Post-It* Fax Note	7671	Date	8/3/04
To	Bob Curry	From	Sue
Co./Dept.		Co.	
Phone #		Phone #	60
Fax #	574-946-2020	Fax #	60

Radiation Safety Seminar

ENGELHARDT & ASSOCIATES, INC.
RADIATION CONSULTANTS

This course provides comprehensive training for industrial, medical and research/biotechnology personnel. The course uses a "nuts and bolts" approach to radiation safety, so each attendee receives information pertinent to them. This class is broken into "core" lectures followed by separate group sessions for industrial, medical and research/biotechnology users. Each group receives specific instruction as well as hands-on use of meters, etc., for meeting specific needs and regulatory requirements.

NEW ORLEANS, LA
SEPTEMBER. 13-15, 2004

Aug 03 04 11:02a ENGELHARDT & ASSOC. INC. 608-224-0821 p.1

WHO SHOULD ATTEND

People in industry (fixed or portable gauges), hospitals and academic/research facilities who are responsible for radiation safety or need to understand the principles of radiation safety. Excellent course for the newly appointed RSO. This seminar meets regulatory requirements for RSO training for fixed gauge users, or serves as an excellent introduction to new radiation workers. This course is also a great refresher to keep abreast of the ever changing field of radiation protection.

SEMINAR COORDINATOR

Sue Engelhardt has over 25 years experience in Health Physics. After receiving her M.S., she worked as a Health Physicist in the uranium fuel cycle, and then as the RSO at the University of Wisconsin-Madison for 10 years. At the UW-Madison, Susan had experience with multi - curie quantities of radioactive material. As a nationally recognized speaker/trainer in the heavy industry environment, Susan also presents client specific courses to the Medical, R&D and Biotech specialties. As President of Engelhardt & Associates, Inc., she organizes and presents a wide spectrum of training courses, conducts compliance audits and develops licenses.

OUR SEMINAR WILL FEATURE FIVE INSTRUCTORS.

Our seminar speakers have been selected, based on their individual expertise to best address your needs.

LOCATION

*Wyndham New Orleans at Canal Place
New Orleans, Louisiana*

Hospitality takes on a flavor all its own in New Orleans. The Wyndham New Orleans at Canal Place offers ideal location for taking it all in while attending our seminar. From the lobby alone, the view of the Mississippi River and the French Quarter are spectacular. The sights, sounds and aroma of the French Quarter are just a stroll away. Luxurious guest rooms and an attentive staff await you at the Wyndham New Orleans at Canal Place.

Continental Breakfast begins at 7:30 a.m., with class starting at 8:00 a.m. each day. We will wrap-up by 4:00 p.m. Monday and Tuesday, and by 1:00 p.m. on Wednesday.

DAY ONE

How Radiation is Used

- Medical
- Industrial
- Academic

Regulatory Agencies

- Who regulates what
- Where regulatory standards come from

Basic Terminology and Radiation Physics

- Types of radiation
- Interaction of radiation with matter
- Half-life; shielding; half-value layers

Radiation Dosimetry

- Types of dosimeters and how they work
- Allowable dose limits; how conservative are these limits?

Radiation Protection

- Time, distance, shielding: inverse square
- Rules of thumb protection
- ALARA

Types of Licenses

- General vs. specific licenses
- Device registrations; special requirements

DAY TWO

Radiation Detection Equipment

- Types of equipment
- Appropriate methods of use
- Demonstration of equipment uses

Sources of Radiation Exposure

- Natural occurring, medical, life-style,
- Risk vs. benefit

Radiation Biology

- Radiation biology at the cellular level
- Early somatic effects, acute effects, delayed effects

Radiation Safety Programs

- Written programs
- Key elements (RSO, RSC, facility design, training, procedures, records, audits)
- Recordkeeping requirements
- Annual reviews
- Responsibilities for radiation safety

Radiation Emergencies

- Source leakage, loss of sources,
- Spills, injuries involving radioactive materials
- Procedures
- Emergency personnel as responders (medical, fire, police)

Packaging & Transportation

- Regulatory requirements (NRC, DOT, IATA)
- Shipper's responsibilities

DAY THREE

Regulations

- 10CFR Parts 19 and 20
- 10CFR 30-34, and 10CFR 35
- Agreement vs non-agreement states

License Writing

- How to prepare an NRC/State license; what will be approved and what will not
- Gauges, specific licenses, general licenses, special requirements

Reportable Incidents

- Determination of reportable incidents
- Reporting requirements

NRC/State Inspections

- How to prepare for an NRC/State inspection
- What to do if the inspection appears to be going badly
- What to do if you are called in for an enforcement conference; can you prepare for it; can you plan for it?

We will break into three separate groups (i.e. medical, biotech/ research, industrial/gauge) each morning and afternoon. This will assure that specific questions and problems are addressed. Please feel free to bring a copy of your license/device registration and operations manual for reference if you would like.

YOUR REGISTRATION FEE INCLUDES:

- Continental Breakfasts
- Afternoon Snacks
- Comprehensive Radiation Safety Manual
- Radiation Training Materials
- Licensing Sessions

Continuing education credits are available for: Society for Nuclear Medicine Technologist Section, ARRT, AAPM, ASNT, AAHP and the American Board of Industrial Hygiene. NRC licensed and approved by Agreement States for Fixed Gauge Users.

EVALUATION COMMENTS FROM PAST ATTENDEES...

- "Great Course! Would recommend it to anyone, any level."
- "Your group is very dynamic and very organized. You are precise - to the point - and you get the job done!"
- "This was the best conference/training I've attended. I felt comfortable with the instructors from the first day. I felt very comfortable asking questions and feedback to my questions was helpful. If I'm ever in a position to recommend your services, I will do so. Thanks."
- "As a new RSO I'm off to a great start. I'll be back in a year or two for a refresher."
- "The course was more than I expected. I am amazed at how much information I learned in a week. The instructors were all excellent, the material was in an easy to understand format and the entire week was the best training session I have ever attended."
- "This is one of the few seminars that I have attended that lived up to its advertisement - if not surpassed."
- "Engelhardt & Associates is definitely a top notch and professional company to deal with. I've worked with various radiation companies and I would rank Engelhardt as Number One!"

Visit our website at www.radexperts.com

Send, Fax or Register Online:

ENGELHARDT & ASSOCIATES, INC.

6400 Gisholt Dr., Suite 111, Madison, WI 53713
 Phone: (608) 224-0690 • (800) 525-3078
 Fax: (608) 224-0821 • www.radexperts.com
 E-Mail: engel@chorus.net

Registration Fee: \$795.00 per person

Number of People Attending _____

Name: _____

Organization: _____

Position: _____

Address: _____

City: _____

State/Zip: _____

Telephone: _____

Fax: _____

E-Mail: _____

Check enclosed Check, Purchase Order To Follow

Charge to Company P.O. # _____

Mastercard Visa

Acct. No. _____

Exp. Date ____ / ____

American Express

Acct. No. _____

Exp. Date ____ / ____

Signature: _____

(required for credit card orders)

Print Name: _____

Hotel Reservations:

Please contact: Wyndham New Orleans at Canal Place,
 100 Rue Iberville, New Orleans, LA 70130
 (504) 566-7006 or (800) 996-3426
 \$149.00 Deluxe Guest Room

(Space is Limited, Make Your Reservation Early)

Please state that you are attending the Engelhardt & Associates
 Radiation Safety Seminar in order to receive this discounted room rate

**HOTEL ROOMS WILL BE HELD UNTIL AUGUST 24th, 2004,
 SO PLEASE MAKE RESERVATIONS EARLY!**

Please send payment prior to the conference. There are no
 refunds given if cancellation occurs less than 10 days prior to the
 seminar. Thank You!

> COMPANY
14
46996



Ms TOYE SIMMONS
US NRC
REGION III
LICENSING GROUP
2448 WARRENVILLE RD
LISIE, IL 60532-4352