



# MATERIALS INTEGRITY INC.

Quality through Integrity

P.O. Box 221051 • Anchorage, Alaska 99522-1051 • Office: (907) 345-5967 • Fax (907) 348-7353

01-09-03

US Nuclear Regulatory Commission  
Washington, DC 20555

ATTN: Document Control Desk

RE: "Reply to a Notice of Violation"

On November 13, 2002 an Audit was performed by the NRC of our radiographic operations. This was our first audit since receiving our material license. The Auditor told us that since this was our first Audit, that it would be announced and that the purpose of which was to make sure that we were on the right track with all procedural applications as they pertain to our license and NRC rules and Regulations. We received three-severity level IV notice of violations. I do not dispute the auditor's claims and am appreciative that these areas of deficiencies were brought to our attention for correction.

We hope you find our response acceptable

## **RESPONSE**

### **A. Maintain utilization logs.**

*Reason for violation:* Over site on our part. When we put our application for a license together we used NUREG 1556. One of the last items we initiated for the application was our forms. A recent review of our operations and emergency procedures manual revealed no utilization log had been included in the original license application submittal.

*Corrective measures:* We have since the time of our audit performed on November 13, 2002 developed a utilization log and implemented its use. A copy of the form is attached.

*Date of full compliance:* November 14, 2002

### **B. HAZMAT Training for personnel involved with transporting Radioactive material on public highways.**

*Reason for violation:* Over site on our part. We used NUREG 1556 when we put together our application for material license. Only by reference to DOT regulations does it imply we need to train personnel. I did not review those regulations and of course as a consequence overlooked the training and testing requirements.

*Corrective measures:* As allowed by 49 CFR 172 Subpart H, training and testing shall be provided in house, or by and outside public or private institution. It shall be Materials Integrity's policy that all personnel employed as either a radiographer or radiographers assistant shall receive, before they can operate a vehicle capable of transporting radioactive material, the proper training and testing as outlined in Subpart H-Training of 49 CFR 172.

If conducted in house, training and testing shall be administered by the Radiation Safety Officer Documentation of which shall be recorded on the applicable form. see copy attached.

*Date of full compliance:* February 15 2003. As of this date no transportation of radioactive materials has ever been performed by any employee other than the Radiation Safety Officer. We are a small and growing company. As such I am the RSO as well as the company's only

IEB07

Radiographer. Until the date of full compliance I shall be the only personnel employed by Materials Integrity, which will have the authority to transport radioactive materials on public highways. It is our intention to train and test in house all radiographers and radiographers assistants in house before February 15, 2003.

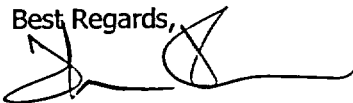
**C. Completion of a written examination by a radiographer's assistant  
Allowed to work in a radiation area.**

*Reason for violation:* Test was administered orally and not written. All questions were answered correctly but were not recorded.

*Corrective measures:* All required testing for radiographers assistant shall be administered in the written form only with typed or hand written answers. Tests with recorded answers shall be kept in personnel files. Since the notice of violation dated December 10<sup>th</sup> 2002, a new written test was administered to the assistant in question. please see copy attached.

*Date of full compliance:* November 31, 2003

Best Regards,



John Jobe, RSO  
Materials Integrity, Inc.

CC: Regional Administrator  
Region IV  
611 Ryan Plaza Drive, Suite 400.  
Arlington, Texas 76011





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Company specific Hazardous Materials Training for the transport of Likened radioactive Materials

TRAINEE

(Print) First Middle Initial Last

This is to verify that the above named individual has received instruction in the handling and transportation of Company licensed radioactive material. He or She has demonstrated his/her competency by completing a written test covering he basic training requirements as outlined below:

49 CFR part 172 subpart H-Training

- General Awareness and familiarization with the governing DOT standards 49 CFR part 172 and our own Operations and emergency procedures manual.
• Function specific training to include the types of radioactive material we deal with.
• Function specific training to include the proper labeling, identification and preparation of shipping containers.
• Function specific training to include a thorough understanding of the Transport Index.
• Function specific training to include a thorough understanding of required records/forms to be filled out.
• Function specific training pertaining to labeling Yellow I, II, or III
• Function specific training on the required radiation surveys to be performed before and after shipment.
• Function specific training in the proper way to fill out a Dangerous goods declaration, as well as an understanding of all applicable nomenclature listed on a declaration of dangerous goods.
• Function specific training in the placarding of a company vehicle that is used to transport licensed radioactive material.
• Function specific training in the application and implementation of company emergency response procedures in case of an accident with a company vehicle used to transport licensed radioactive material.

SIGNATURE OF TRAINEE \_\_\_\_\_ DATE \_\_\_\_\_

SIGNATURE INSTRUCTOR \_\_\_\_\_ DATE \_\_\_\_\_

CHaydon

C

Christopher Haydon  
11/30/02

Answers

1. follow procedures and use youi survey meter
2. is the measure of intensity of radioactive material
3. IR 192
4. 1 minute
5. 200mr/hr at contact
9. True
10. 6 mos
11. True
12. 400-450 rem
- 13 True
- 14 True
- 15 0-200mr
- 16 battery check and instrument check at source
- 17 in a straight line
- 20 return to the supplier
- 22 time distance and shielding
- 26 True
- 29 John Jobe
- 30 Secure the area maintain survalence and go get the RSO
- 35 survey meters
- 36 5R
- 40 False
- 41 Daily when in use
- 45 2 mrem /hr
- 46 two times a day once before work and once after
- 48 false



**8.0 RADIOGRAPHER AND RADIOGRAPHER'S ASSISTANT'S TESTS**  
**MATERIALS INTEGRITY, INC.**  
**WRITTEN RADIOGRAPHER AND RADIOGRAPHER'S ASSISTANT**  
**RADIATION SAFETY EXAM QUESTIONS:**

1. What is the most important thing that you can do to avoid an overexposure to radiation?
2. What is a curie?
3. What type of material is a radioactive source?
4. You are working in an area with a radiation level of 120 mR. How long would it take for you to receive an exposure of 2 mR?
5. The exterior surface of a radiographic exposure device may read no greater than ?? mR/hour?? at contact?
6. What is the minimum range of radiation survey meters used in radiography?
7. Any of the body tissues may be injured by excessive exposure to X-ray or gamma rays. However, particularly sensitive areas are ???
8. The thickness of a material that will reduce the intensity of an X-ray or gamma ray beam to  $\frac{1}{2}$  of its original value depends upon what two things?
9. TRUE OR FALSE: during each radiographic operation, the radiographer or radiographer's assistant shall maintain direct surveillance to protect against unauthorized entry into the radiographic area.
10. Radiation survey meters must be calibrated after each servicing and at LEAST EVERY ?? MONTHS??
11. TRUE/FALSE: A record of the radiation exposure of each individual involved in radiography must be maintained.
12. What is the acute radiation exposure most generally considered to be fatal?
13. TRUE/FALSE: All radiographers must wear dosimeters, film badges, rate alarm meters.
14. True/false: During radiographic operations, the sealed source assembly shall be locked in the shielded position each time the source is returned to that position.
15. Pocket dosimeters used in radiography must have a range of at least ??
16. Explain the checks that you would make of your survey meter prior to using.
17. How do X- and gamma rays travel??
18. How often must radiographic sources be inventoried?
19. When must radiographic exposure devices be secured against physical removal?
20. How would Materials Integrity normally dispose of sources that have decayed to a level that they are no longer useful?
21. Define the term: "half-life."
22. What is the best means of protection from external radiation?
23. With what information must exposure devices be labeled?
24. Explain the difference between dose and dose rate.
25. Constant surveillance is required in areas in excess of ?? mR/hr?
26. TRUE/FALSE: If the restricted area does not have locked doors or an alarm, you must maintain surveillance of the entire restricted area to make sure no one enters.
27. What type of readings do survey meters provide?
28. How does time affect the intensity of a radioisotope?
29. Who is Materials Integrity's the Radiation Safety Officer (RSO) for Materials Integrity?

C

**MATERIALS INTEGRITY, INC.**

**WRITTEN RADIOGRAPHER AND RADIOGRAPHER'S ASSISTANT  
RADIATION SAFETY EXAM QUESTIONS:  
CONTINUED**

30. Describe the actions you would take if you were unable to retract a source back into the exposure device.
31. Define UNRESTRICTED AREA.
32. Define RADIATION AREA.
33. Define HIGH RADIATION AREA.
34. Name an advantage of the pocket dosimeter type of ionization chamber used to monitor radiation received by personnel.
35. What are the portable instruments used to monitor radiation areas called?
36. What is the maximum allowable dose to the whole body annually for an adult?
37. What is the maximum dose allowable to the whole body annually for a minor?
38. Describe your course of action if you arrived at a radiography job site and found you had forgotten either your film badge or your dosimeter.
39. Describe the actions you would take if you suspected an individual had been exposed by a radiographic source.
40. TRUE/FALSE: If you are quick, it's OK to pick up a loose radiographic source by hand and place it in the camera.
41. When must an entry be made in the utilization log?
42. Define 'RAD.'
43. What type of controls must a radiographer maintain over a HIGH radiation area?
44. What is the allowable external radiation exposure level for a source storage container?
45. What is the maximum dose rate outside the restricted area?
46. When must dosimeter readings be recorder?
47. How must motor vehicles transporting radioactive sources be placarded?
48. TRUE/FALSE: A radiographer will develop a tolerance to radiation exposure.
49. With what documents must management supply radiographers and radiographers assistants?
50. Under what circumstances may a radiographer's assistant operate an exposure device or utilize a radiation survey meter?

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