



**REINHART
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SPECIALISTS**

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R&A No. QA-104

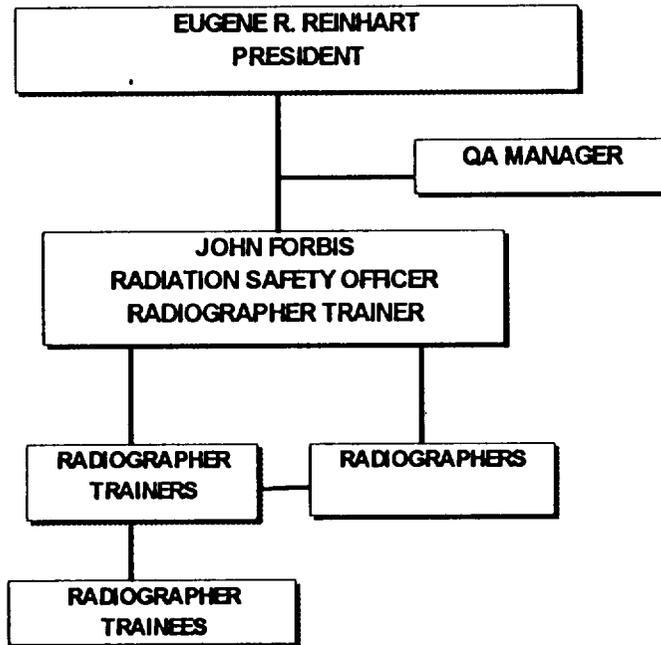
**QUALITY ASSURANCE PROGRAM FOR PROCUREMENT,
INSPECTION, AND TRANSPORTATION OF
INDUSTRIAL RADIOGRAPHIC EXPOSURE DEVICES**

ORIGINAL

I. PURPOSE:

This program was developed to satisfy the requirements of 10CFR 71.101, subpart H (Quality Assurance) that apply to the procurement, inspection, and transportation of industrial radiographic exposure devices, sources, and source changers.

II. QUALITY ASSURANCE (QA) ORGANIZATION:



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III. PROCUREMENT DOCUMENT CONTROL:

- 1.) Radioactive sources are to be ordered by the Radiation Safety Officer (RSO) or by personnel under his supervision.
- 2.) All radiographic exposure devices and/or radiographic sources (in source chargers) are to be ordered using Reinhart & Associates, Inc. (R&A) purchase order numbers:
 - A.) purchase order forms shall be filled out as required and specified in QA-100.
 - B.) purchase orders shall be approved by authorized individuals, subject to review by the QA manager.
 - C.) purchase order numbers shall be recorded in the PO log book and provided to the vendor for reference and tracking.
- 3.) Purchase order records are subject to QA audit on an annual or as needed basis, to be determined by the QA manager.

IV. RECEIPT OF EXPOSURE DEVICES AND RADIOACTIVE SOURCES IN SOURCE CHANGERS:

- 1.) Source Changers and exposure devices delivered to R&A by a common carrier are to be surveyed and results recorded per TXBRC 21.906 (b) & (c), respectively.
- 2.) Qualified radiographic personnel, as directed by the RSO, may perform the surveys and initial the proper source receipt form.
- 3.) Radioactive Materials Receipt Log is to be maintained in the RSO's records in Buda, TX per TXBRC regulations (31.4).
- 4.) Survey meters used in the surveys are to be maintained and calibrated per TXBRC regulations (31.5).
- 5.) Radiographic personnel surveying and handling radioactive material shipments will wear film badge dosimetry.
- 6.) The TXBRC and the final delivery carrier shall be notified if external radiation levels are detected exceeding limits of 21.906 (d)(2).

V. TRANSPORTATION OF SEALED SOURCES IN EXPOSURE DEVICES AND/ OR SOURCE CHANGERS:

- 1.) The RSO designates radiographic personnel that will be responsible for properly checking, packaging, documenting and transporting radiation sources.

- 2.) Proper film badge dosimetry is required to handle exposure devices or source changers.
- 3.) An operable and calibrated survey meter must be used by personnel handling these devices to survey and document radiation levels on the proper forms.
- 4.) Labeling of devices will be maintained per TXBRC 31.53 (c)(4) iii, IV, V and 31.53(d). DOT regulations for Type B containers as outlined in R&A RT-100 must also be followed. Out of specifications labels will be replaced before transport.
- 5.) Type B containers for Type A exposure devices and/or source changers are to be checked for labeling as in (4) above. These containers utilize packing material to protect the exposure device from shock and fire damage. Before use, the packing should be checked for integrity and proper assembly. (These containers will be obsolete January 1, 1996 for transport of exposure devices).
- 6.) A transport document will be completed and signed by the qualified driver of the transport vehicle. Driver must have, as a minimum, a Class C commercial license with Hazardous Material Endorsement in order to transport radioactive sources..
- 7.) Surveys will be made of the radiation package and transport vehicle to determine whether radiation placards must be used. Survey results will be recorded on the transport document.
- 8.) Transport vehicle must be placarded with R&A home office address and telephone number on two sides, as a minimum.
- 9.) The transport documents must be carried in the cab within reach of the driver. A survey meter should also be in the cab.
- 10.) In the case of a traffic accident, if possible, the integrity of the radiation package should be determined and proper notifications made as the situation demands.
- 11.) QA audits of transport documents, device/container labels, and placarding will be carried out by R&A and the TXBRC.

VI. UTILIZATION INSTRUCTIONS:

- 1.) Radiographic personnel will observe written instructions for use of source exchange devices, Type B barrels for Type A exposure devices/source changers. These instructions are supplied by the device/source manufacturers.
- 2.) Utilization and documentation will follow the TXBRC applicable regulations and R&A RT-100, Emergency and Operating Procedures.

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- 3.) QA audits will be carried out by R&A personnel (RSO, QA Manager) and TXBRC.

VII. SHIPPING EXPOSURE DEVICES AND RADIATION SOURCES:

- 1.) Only the RSO and persons designated by the RSO may ship sources, source changers and/or exposure devices.
- 2.) Instructions as supplied in RT-100 must be followed.
- 3.) Shipper will carry the shipment to the common carrier for verification of HAZMAT shipping documentation, labeling, and seals.
- 4.) Before sealing a shipping container, R&A Radioactive Material Shipment document must be enclosed.
- 5.) Shipping documents must include the serial numbers of source, exposure device/changer, and barrel. (TXBRC 31.4)
- 6.) Copies of the documents will be included in the notebooks maintained for each exposure device. (TXBRC 31.4)
- 7.) QA audit of shipment documents will be performed by R&A (RSO, QA Manager) and TXBRC.

VIII. REPORTING OF NONCONFORMING PACKAGES:

- 1.) Exposure devices or source changers emitting radiation levels greater than those allowed in TXBRC 21.906(d)(2) will be reported to the RSO. If the package was received from a common carrier, notifications will be begin as specified in TXBRC 21.906 (d).
- 2.) RSO or designated radiographic personnel will make notifications and perform remediation deemed possible and necessary.
- 3.) QA audits of these records will be performed by R&A personnel (RSO, QA Manager) and TXBRC.

IX. CORRECTIVE ACTION FOR NONCOMPLIANCE

- 1.) In cases of non-compliant radiation packages, exposure devices, sources, or source changers, the R&A RSO should be notified before the unit in question is put into use or shipped out. This includes:
 - A.) Locks (inoperable or sticking)
 - B.) Labels (missing or defaced)

- C.) Packing Material (missing or damaged)
 - 1. Fire proofing
 - 2. Shock absorbent
 - D.) Surface emission of radiation (higher than specified)
 - E.) Seals (missing or damaged)
 - F.) Other (not specified)
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- 2.) Non-compliant conditions should be noted on quarterly exposure device inspection and maintenance records, daily utilization log and radiation survey sheet.
 - 3.) The RSO will regularly review daily utilization logs and quarterly exposure device maintenance logs to perform necessary corrective actions.
 - 4.) The RSO will follow up the corrective action to ensure proper remedial measures were executed and documented. RSO follow up input will be documented on an appropriate log sheet, either daily utilization or quarterly device maintenance.
 - 5.) Recurring problems (documentation, labeling, etc.) Will be discussed with radiographic personnel as a topic in a re-training session, or during a field audit.
 - 6.) Serious defects may require returning the exposure device to the original manufacturer for repair.