U.S. SILICA®
Sands of Time

October 31, 2007

U. S. Nuclear Regulatory Commission
Region I
Security and Industrial Branch
Division of Nuclear Materials Safety
475 Allendale Road
King of Prussia, PA 19406 - 1415

NMSB3

Attention: Mr. John D. Kinneman - Chief

RE: **U. S. Silica Company - Corporate QA Laboratory**

Dear Mr. Kinneman:

03014788

Reference is made to NRC License Number 47-09375-07 issued to the U. S. Silica Company that expires on September 30, 2014. The following three amendments are requested for this license.

1. **GAS CHROMATOGRAPH** – Request the addition of this instrument to the license.

2. **RADIATION SAFETY OFFICER** – Request the addition of Jennifer L. Scriever to the license as the RSO for the laboratory. RSO training documents are enclosed for review.

3. **RADIOACTIVE MATERIAL** – Request the addition of Ni 63 (15 mCi) to the license.

USS understands that no NRC fee is required for the processing of these three amendment requests. Advise if any questions exist or if further information is needed after your review.

Sincerely,

U. S. SILICA COMPANY

Jack M. Pryor, P.E. , P.S. , QEP , CES
Senior Civil Engineer

/jmp
Enclosures

cc: J. A. Ulizio
M. L. Paige
J. L. Scriever
USS Environmental Database / Central Files

141275

NMSS/RGN1 MATERIALS-002

VARIAN

CP-3800 GC
Operator's Manual

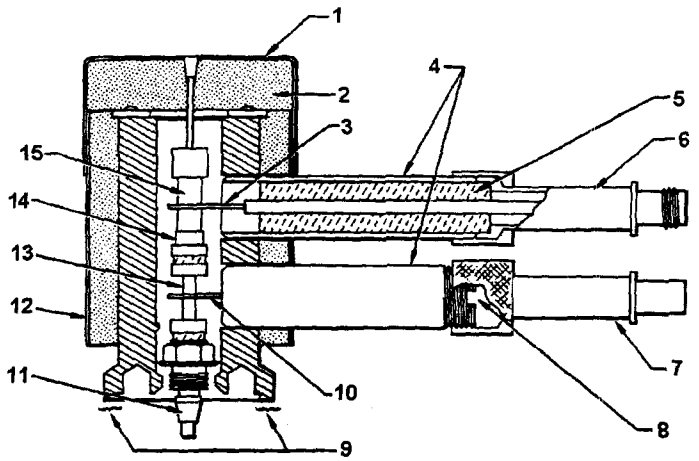
3800 Keyboard and Display ◆ Sample Introduction
Detectors ◆ Communications ◆ Local Automation

QUALITY SYSTEM
ISO 9001
CERTIFIED

Varian Analytical Instruments
2700 Mitchell Drive
Walnut Creek, CA 94598-1675/USA

Printed in U.S.A.

ECD Installation You may install the ECD on a hot base, but the column oven must be at room temperature. Refer to Figure 16.



1 Detector Tower Cap
2 Insulation
3 Wide Clip
4 Tower Arms
5 Ceramic Insulator
6 Cell-Pulser Probe
7 Signal Probe
8 Probe Key in Tower-Arm Notch
9 Tower Contact Area to Detector Oven
10 Narrow Clip
11 Swagelok® Ferrule
12 Detector Tower
13 Collector Cylinder
14 Detector Cell Assembly
15 Foil Cylinder

Figure 16 Cross-Sectional View of the ECD

Note: *Because of the sensitivity of the ECD to oxygen, check the pneumatics for pressure leaks prior to its installation. The pressure drop should be less than 0.5 lb./hr. Close the exit at the detector base with the air flow plug (P/N 16-000505-00) and, with the column installed, leak test the ECD. Also, check the connections between the N_2 supply and the on/off valve for leaks.*

1	Turn the detector oven power OFF.
2	Remove the detector cover and the GC top cover.
3	Remove both probes (pulser and signal) from the tower arms (see Figure 16) of the detector assembly. ***Note:*** *Be sure both probes have been removed from the detector tower arms before attempting to install the detector tower. If you insert the installation tool before you have removed the probes you will damage the probe electrode contacts.*

WARNING ***NON-SERVICEABLE ASSEMBLY. Do not attempt to remove the cell assembly which is fixed inside the tower.***

4	Check to see whether the detector tower, base, and detector cell fittings are clean. Install the ECD shim on the detector base. ***Note:*** *Poor metal-to-metal contact between the tower contact area and the detector oven can produce a temperature gradient.*
5	Remove the insulated detector cap.
6	Position the tower assembly on the detector base and install the two 8-32 x 3-inch tower mounting screws loosely in the tower assembly. ***Note:*** *Do not cross-thread the tower mounting screws.*
7	Insert the installation tool into the detector tower assembly (located over the detector cell). Engage the hex nut at the lower end of the cell assembly. Tighten the cell assembly into the base to provide a leak-free seal. *Do not over-tighten.*
8	Alternating between the two 8-32 x 3-inch tower mounting screws, evenly tighten the tower into place.
9	Carefully install the signal and pulser probes in the tower arms. The signal probe (bottom) has a twist-lock cable connector and a narrow clip to engage the collector cylinder. The pulser probe (top) has a threaded cable connector and a wide clip to engage the foil cylinder. Insert the probes into the tower arms with the keys on the probes lined up with the notches in the tower arms. If you encounter any resistance during the insertion of the probes, check that the probes are being installed in the correct positions.
10	Install the insulated detector tower cap. The label shown in Figure 17 is factory installed on a detector tower registered as a General License Device.
11	Connect the pulser and signal cables to the appropriate probes of the ECD. Refer to the designation on each cable connector.
12	Cable connections for the operation of the ECD require installation of the ECD Electrometer Board.
13	Connect the gas supplies at the rear of the GC.
14	Replace the GC top cover and the detector cover.
15	Install the "CAUTION RADIOACTIVE MATERIAL" label (P/N 31-000347-00) in a location on the front of the GC that is clearly visible. This label describes the ECD radioactive isotope and the amount of radioactivity (Figure 18).
16	Return the installation tool to the ECD case. You will use this tool each time you remove the ECD. Retain the ECD case should you need to store the ECD or to return the detector to Varian. See the Radiation Safety Manual.

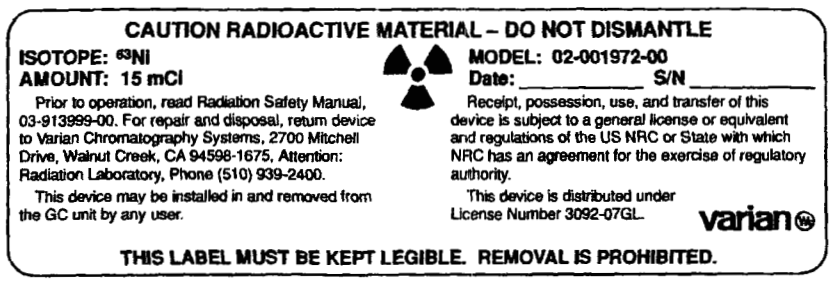


Figure 17 Radioactive Caution Label - Factory Installed

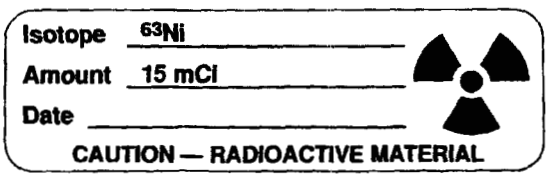


Figure 18 Radioactive Caution Label - User Installed

PC Board Removal/ Installation

The ECD PC Board is a slide-in module. To remove the ECD PC Board, proceed as follows:

WARNING: SHOCK HAZARD

Dangerous voltages exposed. Turn the GC power OFF when you remove or install PC boards. Failure to do so may result in accidental contact with dangerous voltages, or damage to the PC board or GC.

1	Turn the GC power OFF and remove the left side panel.
2	Disconnect the signal and pulser cables from the electrometer.
3	Remove the 8-32 screw at the top of the electrometer.
4	While holding the metal can, ease the PC board straight out of the guide slot in the electrometer bay. If possible, do not touch the edge connectors. Place the PC Board in a clean anti-static bag.
5	To reinstall the electrometer board, insert the PC board into the guide slot on the top of the electrometer bay, then slide the board into the connector on the mother board. Never force a board into the cabinet. Make sure that all cables are out of the way before you insert the board. Reconnect the cables to the detector. Check that the connectors mate.

VARIAN

CP-3800 GC
Getting Started Manual

Getting Started ◆ Installation ◆ Basic Operation
Maintenance ◆ Parts and Supplies

QUALITY SYSTEM
ISO9001
REGISTERED

Varian Analytical Instruments
2700 Mitchell Drive
Walnut Creek, CA 94598-1675/USA

Printed in U.S.A.
03-914647-00:Rev. A

CE

Declaration of Conformity

We hereby Declare that the equipment listed below complies with the requirements of:
The Low Voltage Directive 73/23/EEC (93/68/EEC)
The EMC Directive 89/336/EEC (92/31/EEC and 93/68/EEC)

Applicable Standards

LVD	EN 61010-1		
EMC	EN 50082-1		
	EN 55011		
TUV File Number:	P9772163		E9674239
Type of Equipment:	Gas Chromatograph	**Model:**	CP-3800, CP-3380

Authorized Representative in the EU

Print Name: H.S. ten Haave

Signed: _____

Position: Managing Director

Date: May 24, 2000

Company Name: Varian Chrompack International BV
Address: Herculesweg 8
P.O. Box 8033
4330 EA Middelburg
The Netherlands
Telephone: +31(0) 118 671 000
Fax: +31(0) 118 633 118

Manufacturer

Print Name: Garry Rogerson

Signed: _____

Position: General Manager

Date: May 24, 2000

Company Name: Varian Analytical Instruments
Address: 2700 Mitchell Drive
Walnut Creek, California 94598
USA
Telephone: 925-939-2400
Fax: 925-945-2168

02-914535-24:5
SPEC 02-914411-00 1.2.3.4n

VARIAN

VARIAN

Quality Systems At Varian

The ISO 9000 series standards were created in Geneva in 1987 to cut through a morass of conflicting quality definitions. These standards define a model for quality assurance systems in product design, development, manufacturing, installation, service, and customer support. They are now the worldwide quality assurance benchmark used to gauge the strength of a company's commitment to quality, and the value of its quality systems.

Various organizations around the world, such as the British Standards Institution (BSI), provide certified, objective auditors to scrutinize quality procedures, product development, manufacturing processes, and customer satisfaction programs. No company can claim ISO 9000 series registration unless it receives a stamp of approval from the demanding quality assessors of BSI or similar accredited examining body. ISO 9000 series registration constitutes an objective third-party report to determine the level of a supplier's commitment to quality.

In 1992, Varian Chromatography Systems became registered to the most comprehensive of the ISO 9000 series standards — ISO 9001. ISO 9001 registration means that every stage of our quality system, including product development, manufacturing, final test, shipping, and parts and supplies has been rigorously examined against the most exacting set of internationally recognized standards. It means we live up to a standard of quality that you can count on today, and into the future. Our Quality System has received ISO 9001 certification number FM21797.

The quality systems that earned us ISO 9001 registration have direct benefits for our customers:

- We can speed instruments to you faster than ever before. Emergency orders can be processed even faster.
- We fill your orders promptly and completely.
- We have implemented a system of continuous feedback from our customers — we are aware of your needs today and tomorrow.
- We have improved your productivity by cutting systems failure rates in half and speeding service response time.
- We have embedded continuous improvement into the fabric of our organization so that we can achieve even higher levels of quality in the future.
- We are embedding GLP requirements into our products and services to help you meet your regulatory compliance requirements.

ISO 9001 registration is not enough. For us, quality is defined by our customers. We are not satisfied unless you are satisfied. We are striving to understand customer needs, using independent surveys, user groups, customer advisory boards, and our "Hallmark of Quality" response program, in addition to individual face-to-face customer contact. Our products and our processes are configured to meet those needs.

We know that you are seeking more than the most advanced processes and top-notch applications expertise. You want to join forces with a partner committed to delivering world-class quality, reliability, and value — on time, every time.

QUALITY SYSTEM ISO 9001 CERTIFIED

Our overriding aim is to be that partner.

Introduction

Guide to the 3800 User Manuals

The purpose of these User Manuals is to provide instructions for the safe installation and operation of the Varian 3800 Gas Chromatograph.

Finding Information in these Manuals

The 3800 is supplied with two user manuals: a Getting Started Manual and an Operator's Manual. The Getting Started Manual contains basic installation, operation and maintenance information intended to familiarize the new user with the 3800. The Operator's Manual contains more detailed information, including information on the specific installed options on the 3800.

Abbreviations

The following abbreviations appear in this Manual:

ac	alternating current
dc	direct current
ECD	Electron Capture Detector
EFC	Electronic Flow Control
FID	Flame Ionization Detector
GC	Gas Chromatograph
GC/MS	Gas Chromatograph/Mass Spectrometer
ID	Inner Diameter
OD	Outer Diameter
P/N	Part Number
PFPD	Pulsed Flame Photometric Detector
TCD	Thermal Conductivity Detector
TSD	Thermionic Specific Detector
Micro-TCD	Micro Thermal Conductivity Detector

Brief Description of the 3800 Gas Chromatograph

The following are some of the key features of the 3800:

- Three injectors, columns and detectors can be installed and operated simultaneously.
- The 1079 Universal Capillary Injector provides five modes of injection - isothermal split and splitless, temperature ramped splitless, on-column and large volume.
- Electronic or manual control of carrier gas.
- Ethernet® communications with full networking capability.
- A full suite of universal and selective detectors - FID, TCD, ECD, TSD (N, P), PFPD (S, P, N, C, Metals), Micro-TCD and Ion Trap MS.
- Large, swing-out pneumatics for easy access.
- Seven heated zones and seven external events for maximum flexibility and custom configurations.
- Up to eight separately programmed and stored analytical methods.
- Intuitive, function-based keyboard with large, dot matrix display for ease of use in method building and viewing instrument status.
- Built-in Custom Solutions capability - valved systems, custom plumbing, six-position valve oven, methanizer.
- Large column oven for easy access and installation of up to three analytical columns.
- A complete range of GC automation and sample preparation techniques - the 8200 AutoSampler with AutoDrive accessory, dual 8200 AutoSamplers, Solid Phase MicroExtraction, Purge and Trap, Heated Headspace, and the Archon Purge and Trap AutoSampler.

Configuration and Options

The 3800 has seven heated zones, one of which is always configured as the column oven. The following options may be configured in the other six available heated zones:

- 1079 Universal Capillary Injector
- 1041 On-Column Injector for large bore (0.53 mm ID) or packed columns
- 1061 Flash Vaporization Injector for large bore or packed columns
- Single, dual, or multi-position Valve Oven
- Flame Ionization Detector
- Thermal Conductivity Detector
- Electron Capture Detector
- Thermionic Specific Detector
- Pulsed Flame Photometric Detector
- Methanizer
- Micro Thermal Conductivity Detector

Any combination of three injectors may be installed on the 3800. If a valve oven is installed, it normally replaces two injector positions.

Any combination of three detectors can be installed with the following exceptions: Only two TCD or PFPD detectors can be installed. If two standard TCDs are installed, then no other detectors can be accommodated. However, a dual TCD (two cells in one housing) is available as a Custom Solution which allows installation of another detector, such as an FID, behind it.

The methanizer typically occupies the same location as one of the detectors. Dual 8200 AutoSamplers restrict the 3800 configuration to two injectors and two detectors.

Installed options on the 3800 are generally identified by their location. The options mounted on the top of the instrument, such as those listed above, are designated as Front, Middle and Rear to coincide with their relative location or the location of their respective electronic control modules.

Integrated Environmental Management, Inc.

Certificate of Course Completion

Jennifer L. Scriever

"Refresher Training for Gauge and Device Authorized Users"

Two (2) Hour Teleconference Refresher Training

Gaithersburg, Maryland - November 17, 2004

Carol D. Berger, CHP,
Instructor

REFRESHER TRAINING FOR
GAUGE AND DEVICE AUTHORIZED USERS

presented by:

Carol D. Berger, C.H.P.
Integrated Environmental Management, Inc.
8 Brookes Avenue, Suite 205
Gaithersburg, Maryland 20877
(240) 631-8990
CDBerger@IEM-Inc.com

AGENDA

Introductions (Instructor and participants)

Course Overview/Purpose
Radiation Fundamentals
Stationary Gauges and Devices
Licensing and Regulations
Question/Answer Session

RADIOLOGICAL HEALTH AND SAFETY POLICY

Contained in your facility's Radiation Protection Program Plan (RPPP), or equivalent document

The RPPP is designed to:

Ensure health/safety of all individuals

Satisfy regulatory requirements (both federal and state-specific)

COURSE OVERVIEW

Provide fundamentals of radiation safety

Applicable to your facility where x-ray or nuclear density gauges are in use

Terminal objective:
Participants acquire basic understanding of radiation protection principles
Participants follow safe and legal work practices where gauges are located
Participants able to identify and report non-standard conditions

COURSE MANUAL

Training modules:
Radiological Fundamentals
Biological Effects
Radiation Limits
Control of External Radiation
Radiological Instrumentation
Radiological Controls
Regulating Radioactivity

Exercises after each module!

Also included:
Glossary
Radiation Protection Policy
Applicable Procedures
Copies of Instructor's Viewgraphs

RADIOLOGICAL FUNDAMENTALS

Objectives:

Understand and explain basic nuclear structure

State the origin and cite several properties of radiation

Understand and explain basic radiation terms

ATOMIC AND NUCLEAR STRUCTURE

Basic unit of matter is the atom

Nucleus contains protons and neutrons

Electrons found outside the nucleus

DEFINITIONS

Ionization - process of removing electrons

Ionizing radiation - particles or rays emitted from radioactive atoms (may cause ionization in other atoms)

Types of ionizing radiation pertinent to this class:
gamma rays
x-rays

X-RAY AND GAMMA RAY PROPERTIES

Electromagnetic waves (photons)

No mass or charge

X and Gamma rays are similar in nature
X-rays - Originate *outside* the nucleus
Gamma rays - Originate from *within* the nucleus

High penetrating power

Shielded by dense materials (lead, steel, concrete)

External biological hazard only

QUANTITIES AND UNITS

Quantity - amount of something

Unit - specific quantity used as standard of measure

Example:
Length (quantity)
Meters (unit)

In radiation protection, we use the following units:
Roentgen (R)
Rad
Rem

1R = 1000 milliroentgen (mR)

DOSE VERSUS DOSE RATE

Dose = amount of radiation energy absorbed by the body

Dose rate = dose to the body over a specific time period

Examples:
rads per second
millirads per hour
millirems per year
microrem per day

For the purposes of this course:
1 rad = 1 rem
1 millirad = 1 millirem
1 microrad = 1 microrem

RADIATION VERSUS CONTAMINATION

Radioactivity is a collection of radioactive atoms

Radiation is emitted when radioactive atoms decay

Contamination is actual radioactive material that emits radiation

Bottom line:
Radioactive material *is not* present in an x-ray machine
You cannot become contaminated from x-rays

Radioactive material *is* present in a nuclear gauge
You cannot become contaminated unless the gauge is broken

SUMMARY

Phenomenon of radiation and radioactivity based on nuclear instability

Ionizing radiations cause ionization (ejection of electrons) in atoms

X-rays and gamma rays are the ionizing radiation of interest in this course

Photon radiations have several interesting properties

A variety of radiation terms have evolved since radiation/radioactivity discovered in the 1890's

RADIOACTIVE DECAY

Atoms with too much mass attempt to achieve stability

They "decay" by emitting excess mass and energy

Some radioactive elements emit gamma rays during decay

After decay, the radiation source achieves stability; for a large collection of radioactive atoms, as time goes on, the rate of gamma rays being emitted decreases

"Half life" is the amount of time it takes for one-half of the radioactive atoms to decay to stability

GAMMA IRRADIATOR

A source of radiation is enclosed in a "capsule"

The capsule is enclosed inside of a heavily-shielded container

The container has an "aperture" (or opening) through which radiations may pass when a "shutter" is opened

Examples of gamma irradiators:
Cobalt teletherapy unit
Nuclear density gauges

Gamma radiation is an efficient process
Gamma energy can be "selected" by selecting the type of radioactivity
As time goes on, the intensity of the radiation decreases

BIOLOGICAL EFFECTS

Objective:

Understand the potential biological significance of exposure to ionizing radiation

NATURAL BACKGROUND RADIATIONS

Four primary components:
Cosmic
Terrestrial
Radon
Internal

US average annual dose from these sources is 360 millirem (mrem)

Range can be from less than 260 to more than 1,000 millirem per year!

MAN-MADE RADIATION SOURCES

Four primary components:
Medical
Consumer products
Industrial uses
Environmental sources

Industrial uses include x-ray and nuclear gauging systems

Average annual dose to the general public from man-made sources is 60 mrem

Average annual dose from the use of gauging devices is *much, much* less than one (1) mrem

RADIATION SOURCES OFTEN USED IN DENSITY GAUGES

Cesium-137 (Cs-137) - 30 years; 662 keV

Cobalt-60 (Co-60) - 5.2 years; 1,170 and 1,320 keV

Iridium-192 (Ir-192) - 74 days; 320 keV

Krypton-85 (Kr-85) - 10.7 years; 513 keV

Americium-241 (Am-241) - 432 years; 59.5 keV

Strontium-90 (Sr-90) - 28.6 years; 900 keV average beta energy

Californium-252 (Cf-252) - 2.7 years; 6.1 MeV alpha and spontaneous fission

Radium-226 (Ra-226) - 1,600 years; 700 keV (average of series gammas)

ACUTE VERSUS CHRONIC DOSES

Acute - A radiation dose (sometimes high) delivered within a short time period

Chronic - Small amounts of radiation received over a long period of time

Examples of acute exposures:
Tumor therapy
Accident or incident involving high-level sources

Examples of chronic exposures:
Natural background
Nuclear medicine study
Occupational exposure from density gauges

RADIATION RISKS IN PERSPECTIVE

We know more about the potentially harmful effects of radiation than about any other carcinogen

Basis of our knowledge is predominantly large, acute exposures
Atomic bomb survivors
1950's medical procedures

Difficult to quantify risks at low doses and dose rates

Presently, no health effects have ever been observed below 10,000 rads (acute)

Bottom line:
Risks associated with exposure from occupational radiation doses (at the dose limit) are much less than other occupational risks

SUMMARY

People are exposed to both natural and manmade sources of radiation

Density gauges are examples of a manmade (industrial) source

Density gauges represent a source of chronic (low) exposure

When put in perspective, risk from exposure to these devices is too low to be demonstrated

RADIATION DOSE LIMITS

Objectives:

Understand the reason for establishing radiation dose limits

State the primary annual dose limit

Explain the rationale for administrative control levels

BASIS FOR OCCUPATIONAL DOSE LIMITS

Based on guidance from national and international agencies

Basis:
Occupational exposure should pose no greater risk than any other occupational tasks

WHOLE BODY VERSUS EXTREMITY EXPOSURES

Whole body - defined as the head, trunk, arms above the elbow, legs above the knee

Whole body contains vital organs, therefore dose limits are lower than for extremities

Extremities - defined as the hand, elbow, arm below the elbow, foot, leg below the knee

There are no blood-forming organs in the extremities, therefore dose limits are higher than for the whole body

DOSE LIMITS

Limits exist for the whole body, lens of the eye, skin and extremities

Primary occupational limit of interest is 5,000 millirem for the whole body

Primary limit is:
Cited in the RPPP
Considered to be *safe* by regulatory, standards and guidance agencies

DECLARED PREGNANT FEMALE OPERATORS

Encouraged to notify employer, in writing, when she is pregnant

Can receive up to 500 mrem (10% of whole body occupational limit) over entire gestation period

Administrative control levels should apply

OPERATOR RESPONSIBILITIES

Comply with primary dose limits

Comply with your facility's administrative dose limits

SUMMARY

Dose limits exist to protect operators, visitors, and others at facilities where density gauges are in use

Dose limits exist for the whole body and other targeted areas

Primary federal and state occupational annual whole body limit is 5000 mrem

CONTROL OF RADIATION EXPOSURE

Objective:

Understand the principal philosophy and methods employed to control the hazards of exposure to sources of radiation

ALARA PHILOSOPHY

Reduce the radiation dose to levels which are as low as reasonably achievable

Primarily implemented through use of administrative controls

Requires commitment from operators, management, radiation safety staff

Cited in the RPPP

MODES OF EXPOSURE

Two modes exist:
External
Internal

Only external exposures apply to density gauge use
(as long as nuclear gauges are functioning appropriately!)

CONTROL OF EXTERNAL EXPOSURES

Time:
Follows direct linear relationship with radiation exposure
The less time spent in a radiation field, the lower the exposure

Distance:
The farther you are away from a radiation source, the lower the exposure
Does not always follow a linear relationship
Inverse Square Law

Shielding:
More absorbing material between the source and you, the lower the exposure
For photon radiation, lead and steel are good choices
Nuclear gauges are shielded sufficiently to meet USNRC (or state) device registration standards

MONITORING FOR EXTERNAL EXPOSURES

Performed in a variety of ways

Best examples include survey instruments and personnel monitoring devices (i.e., badges)

The methodologies in use at your facility are cited in the RPPP

SUMMARY

All radiation exposures should be maintained "ALARA"

Density gauges are a potential source of external exposure

Primary external controls utilize time, distance, and shielding

Monitoring for external exposures can be performed in a variety of ways

Density gauges have built-in safety features

RADIOLOGICAL INSTRUMENTATION

Objective:

Understand the use of portable radiation instruments used to detect and quantify radiation fields

RADIATION SURVEYS

Should be conducted on all new or recently installed density devices

Preliminary surveys and after re-positioning/repair often required by state law

Requires instrumentation appropriate to radiation type and energy

Must be performed by trained and licensed personnel

Specific requirements are cited in the RPPP

PHOTON DETECTION INSTRUMENTS

Primarily types:
Geiger counters
Ionization chambers
Scintillation detectors

Geiger counters and scintillation detectors "detect" radiation

Ionization chambers "measure" the amount of radiation present by reading out in units of radiation dose

Ionization chambers are preferred for their greater accuracy and quantitative capability; however lower limits of detection are relatively high

Geiger counters and scintillation detectors are preferred for their increased detection sensitivity; they can be manufactured and calibrated to read-out in units of radiation dose or exposure

Those in use at your facility are cited in the RPPP

INSTRUMENT CALIBRATION

Planned and periodic calibration is required

Calibration method must be appropriate for the intended use

Calibration service vendor must commit to the recommendations in ANSI-N323

Maintain all calibration certificates as part of your permanent records

INSTRUMENT USAGE

Daily checks (HV, battery, background, radiation, calibration)

How to survey (ambient, contact, contamination)

Reading the meter

Recording results

Instrument "care and feeding"

SUMMARY

Portable instrumentation is routinely used to perform surveys of radiation generating devices (e.g., x-ray and nuclear density gauges)

Periodic radiation surveys are typically required by federal/state agencies

RADIOLOGICAL CONTROLS

Objective:

Know radiological control considerations associated with operation of x-ray or nuclear density gauges

TYPES OF CONTROLS

Administrative

Engineered

ADMINISTRATIVE CONTROLS

Postings

Warning Labels

Procedures (e.g., RPPP)

Management commitment

ENGINEERED CONTROLS

Shielding - Attenuates (reduces) radiation beam intensity

Shutters - Prevent radiation from escaping when in "closed" position

Interlocks - Prevent x-ray production when in "enabled" position

Should be tested every six months

POSTINGS

May or may not be required by federal or state authorities for the type of gauging device in use at your facility

Utilize the standard three-bladed "trefoil" symbol for radiation

Colors may be magenta or black

LABELS

Used to warn of specific radiological hazards

Example:
"Caution: X-rays produced when energized"

Often includes the standard three-bladed "trefoil" symbol for radiation

Labels may be magenta/yellow, or an engraved (metallic) plate

WARNING DEVICES

Provides ongoing status of the radiation source

Examples:
x-ray device - "Current" meter, warning lights
nuclear gauge - annunciator, control panel warning lights

ACCESS CONTROL

Designed to restrict access/entry when exposure rates are elevated

Proper notification/training/credentials typically required in order to work in these areas

STOP WORK AUTHORITY

Suspends the work effort when "off-normal" or unacceptable activities or conditions are detected.

Provision for stop-work authority typically captured in RPPP

OPERATOR RESPONSIBILITIES

Always adhere to the following:
Postings
Entry requirements
Work requirements
Exit requirements

See your RSO whenever you have a question or concern

SUMMARY

Radiological controls employ a combination of administrative and engineered controls

Access should be restricted to authorized and trained personnel

Stop Work Authority can be invoked when necessary

STATIONARY AND PORTABLE DENSITY GAUGES

Purpose

Operation

Registration by a federal or state agency

OPERATIONS

Purchasing

Instrumentation
Purchase
Calibration
Use (daily checks, performing surveys, recording results)

Gauge operation

Performing ambient surveys

Leak testing

Accountability

Instruct and counsel co-workers

Follow regulatory and RPPP requirements

Communicate with your facility RSO

QUESTION/ANSWER PERIOD

This is to acknowledge the receipt of your letter/application dated

10/31/2007, and to inform you that the initial processing which includes an administrative review has been performed.

☑ AMEND. 47-09375-07
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

_____.

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 161275.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader