

RP CURRENT ISSUES

- **Electronic Devices OFF**
- **No study material at your station**
- **Housekeeping**
 - **Do not leave anything at your station**
- **Chairs back under table**

INTRODUCTION

Information presented in this lesson is BFN specific. Guidelines provided by BFN RP Management were used to determine content included in this course.

This lesson is primarily a briefing to radworkers to inform them of recent problems with radiation worker practices and any RP program changes so that plant performance problems can be prevented.

Successful Radiation Workers

must demonstrate solid performance in

the **Cornerstones of Radiation Protection**

- 1. Dose Control**
- 2. Radioactive Material Control**
- 3. Collective Radiation Exposure**
- 4. Contamination Control**

Unplanned Radiation Exposure

- **Significant Operating Event Report 2001-01 (SOER 01-01)**
 - Trend of unplanned exposure events in the nuclear industry
 - Three Browns Ferry events in a two year period in which unplanned exposures occurred as a result of changing plant conditions creating High Radiation Areas.
 - Seven Browns Ferry High Radiation Area events in a one year period.

Dose Control: Problem Areas

- Sensitivity to High Radiation Areas
 - Wrong RWP
 - Lack of respect for barriers and boundaries for High Radiation Areas
 - Ineffective Communications
 - RWP Non-Compliance
 - Proper control of access to High Radiation Areas

DOSE CONTROL

Entries Into High Radiation Areas Require Special RWPs
With Rigorous Controls and Specific Briefings

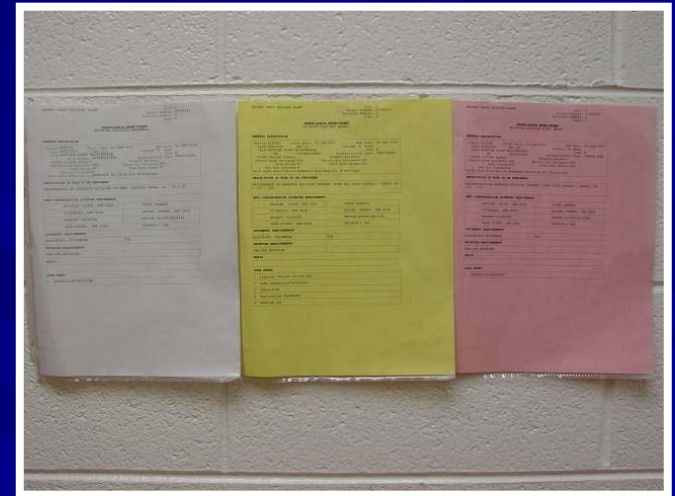
High Radiation Area RWPs

Printed on **YELLOW** Paper

Locked High Radiation Area RWPs

Printed on **PINK** Paper

Why? To differentiate them from other RWPs



Revision 05



DOSE CONTROL : PROGRAM CHANGES

Use of RCA Trip Tickets

◆ RCA Trip Ticket (White Paper)

- Used for all RCA entries other than high radiation areas and locked high radiation area entries
- Include all applicable radiological information
- Include a dose target for each entry
- Can be used for multiple entries - dose accrued for each entry should be recorded upon exit of the RCA
- Should be available for review while in the RCA
- May be used for contaminated area entries

DOSE CONTROL : PROGRAM CHANGES

Use of RCA Trip Tickets

◆ High Radiation Area (HRA) Trip Ticket (YELLOW PAPER)

- Used for all HRA entries
- Include all the same information contained on the *RCA Trip Ticket*
- Includes the Work Step of the RWP to be used
- One time use only
- Requires the name of the RP Technician performing the RWP briefing to sign the trip ticket

DOSE CONTROL : PROGRAM CHANGES

Use of RCA Trip Tickets

◆ Locked High Radiation Area (LHRA) Trip Ticket (PINK PAPER)

- Used for all LHRA entries
- Include all the same information contained on the *HRA Trip Ticket*
- One time use only

DOSE CONTROL : PROGRAM CHANGES

Use of RCA Trip Tickets

- ◆ All trip tickets are the responsibility of the radiation worker.
 - They can be completed prior to arrival at the RCA RP control point and reviewed by the RP Technician providing the briefing.
 - Completed trip tickets with ALARA suggestions will be returned to RP for a drawing.
- ◆ ***REMEMBER: The Trip Ticket is your responsibility and is a tool to help you retain the RWP requirements for work in the RCA.***

DOSE CONTROL : PROGRAM CHANGES

High Radiation Area Access

BFN site and INPO have noted this as an area for improvement and nuclear safety concern. RP has added additional measures in HRA procedures and additional barriers designed to ensure proper control. These measures include securing entrances to HRAs. Pre-job brief for entry into HRAs include the securing method and worker responsibility in maintaining control of the area during work and the requirement to re-secure the area when they exit.

DOSE CONTROL : PROGRAM CHANGES

High Radiation Area Access

Workers will also be required to report to RP after they leave the HRA, which allows RP to perform follow-up checks of the area.

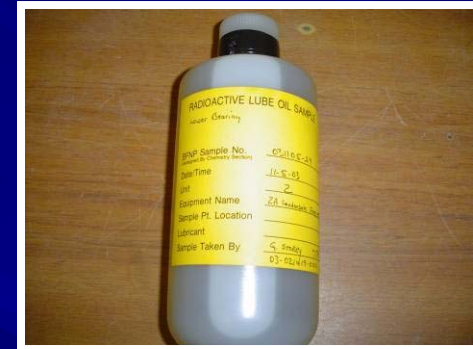
While these additional barriers will assist in improving control of HRAs, the greatest potential for improvement lies with individual workers being responsible and accountable by respecting all radiological barriers and postings.

RADIOACTIVE MATERIAL CONTROL

Examples Of Items That Must Not Be Removed From The RCA



Magenta Painted Tools



Bottle With Radioactive Sample Label



Component With Radioactive Material Tag



Radioactive Material Bag

Rad Material Control: Problem Areas

- Removal of Radioactive Material from the RCA
- Handling of Radioactive Material in the RCA

RADIOACTIVE MATERIAL CONTROL: PROGRAM CHANGES

Personnel and Personal Items Exiting RCA Areas

The adjacent table indicates the items that individuals may wear through a personnel contamination monitor or may place in a small article monitor (SAM) for release from the RCA.

Workers may use the SAM to monitor personal items that have NOT been in a C-Zone as listed in the table.

ALL OTHER ITEMS MUST BE SURVEYED BY RP PRIOR TO REMOVAL FROM THE RCA.

Personnel Contamination Monitor
[Only if being worn] Personal Clothing, Shoes, Watches, Jewelry, Eye Glasses, Hearing Aids, Ear Plugs, Hard Hat, Safety Glasses, Cell Phone, Pager, Flashlight, and other similar personal devices.
Lanyards - Typical items worn on lanyard may remain attached.
Security Officer Weapons and other Security Officer Specific Equipment.
Small Personal Items in pockets (coins, wallet, keys, pens, pencils, etc.).
SAM
Gloves, paperwork and notebooks (less than 1 inch thick), radios, flashlights, and items listed above not being worn.

RADIOACTIVE MATERIAL CONTROL: PROGRAM CHANGES

Personnel and Personal Items Exiting RCA Areas

- **As directed by RP, personnel exiting the RCA will be expected to remove all materials from their pockets to verify no unauthorized items are inadvertently brought through the Personal Contamination Monitors (PCMs).**

RADIOACTIVE MATERIAL CONTROL: PROGRAM CHANGES

Personnel and Personal Items Exiting RCA Areas

Criteria for SAM Use

- **Inspect item prior to placing in SAM to ensure no radioactive material labels or purple paint is present.**
- **Do NOT place any item designated as radioactive material in a SAM. Radioactive Material CANNOT be released from the RCA.**
- **No items that will not physically fit into the SAM without exerting pressure on the sides of the unit.**

RADIOACTIVE MATERIAL CONTROL: PROGRAM CHANGES

Personnel and Personal Items Exiting RCA Areas

Criteria for SAM Use

- No paperwork or notebooks 1 inch thick or greater**
- No items with loose surface contamination**
- No items with self shielding greater than 1/4 inch metal**
- No items weighing greater than 40 pounds**
- No liquids or aggregate materials**

RADIOACTIVE MATERIAL CONTROL: PROGRAM CHANGES

Metal Detectors at RCA Exits

- To ensure that potential metal radioactive material objects are not released from the RCA, metal detectors have been placed at the RCA exit. They have been calibrated to alarm on small tools and screwdrivers as these items present the highest probability of being forgotten during the exit process. All personnel will process through the metal detectors prior to being monitored by the PM 7 personnel contamination monitors.

RADIOACTIVE MATERIAL CONTROL: PROGRAM CHANGES

Metal Detectors at RCA Exits

- Individuals alarming the metal detector will be required to empty their pockets for inspection prior to exiting the RCA.
- Individuals with steel toed shoes that alarm the metal detector will be required to empty their pockets to ensure that no tools are being removed from the RCA.
- Security guards will be exempted from processing through the metal detectors. Please work with Radiation Protection personnel to implement this additional step in the radioactive material control process.

Changes to Exit Requirements for Outside RCAs

- Standby Gas Treatment Building,
- Stack,
- Off Gas Building,
- CST area,
- Low Level Radwaste (LLRW) Facility.

Changes to Exit Requirements for Outside RCAs

All personnel exiting from these RCAs will be required to

- complete a hand and foot frisk prior to exiting and then
- proceed immediately to the nearest Personnel Contamination Monitors (PCM)
- All tools and equipment must be surveyed by RP and meet release requirements prior to leaving the RCA areas.
- RP must escort tools and equipment to suitable survey areas as necessary

Changes in Waste Procedures and Material Leaving the Protected Area

The following changes have been implemented as a result of a container of BFN contaminated pipe compound being identified in a local contract partner scrap metal recycling facility.

1. RP uses a truck monitor to monitor all bulk material (scrap metal dumpsters, trash dumpsters, etc.) leaving the protected area for the presence of radioactive material.

Changes in Waste Procedures and Material Leaving the Protected Area

2. If you are tasked with removing bulk material from the protected area in a truck, you must contact RP at extension 7865 prior to movement for coordination of monitoring the material through the truck monitor. The RP technician providing this oversight will supply you with the specific requirements during and following the monitoring.

Changes in Waste Procedures and Material Leaving the Protected Area

3. All requests for unconditional release of material from site will require RPM approval before submittal to the authorizing official.
4. All refuse dumpsters will be surveyed before removal from the site.

Collective Radiation Exposure

- Effective ALARA Planning
- Minimize number of workers and time required to perform work in the RCA
- Report ALARA suggestions and lessons learned
- Reduce source term with good housekeeping and foreign material exclusion (FME) control practices in the RCA
- Attention to detail when sending items through the x-ray machine. (No TLDs).

Collective Radiation Exposure

- High Radioactive Source Term results in high collective radiation exposure
- Poor housekeeping in the RCA (particularly C-Zones)
 - Ineffective FME controls (can lead to fuel failures and increased source term)
 - * Examples of potential Foreign Material
 - ◆ Tools
 - ◆ Equipment
 - ◆ Parts
 - ◆ Filings
 - ◆ Chemicals

Recent High Radiation Area Events

- Worker entered a High Radiation Area without being on the correct RWP.
 - **The worker was not sure of the location of the component to be worked on and entered the HRA searching for the valve.**
- Workers defeated a High Radiation Area Boundary
 - While removing scaffold material from a HRA, workers used the rope boundary to hold the swing gate open at the entrance to the HRA. This is not approved at any time. Additionally, the workers left the gate tied open when they exited the area.
- These Human Performance issues are unacceptable worker behaviors and will result in disciplinary actions