

NUCLEAR INDUSTRY STANDARD PROCESS

Radiological Protection

Level 3 – Information Use

Access Controls for High Radiation Areas

NISP-RP-005

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This is an industry document for standardizing radiation protection processes. Standard processes and requirements are established to eliminate site-specific radiation protection procedures. The Institute for Nuclear Power Operations (INPO) maintains current procedures on the INPO website. Approval authority is granted by the industry contingent on a structured review and approval process by representatives of utility radiation protection organizations.

Table of Contents

1.0	Introduction	1
2.0	Scope	1
3.0	Definitions	1
4.0	Responsibilities	1
5.0	General Requirements.....	2
6.0	Process Instructions	4
6.1	Control Area Configurations.....	4
6.2	Conduct an HRA/LHRA Entry Briefing	5
6.3	Issue a Key to Access an LHRA	5
6.4	Transfer Possession of an Issued LHRA Key	7
6.5	Terminate Access into an LHRA and Return the Key	7
7.0	Records/Documentation	8
8.0	References	8
8.1	Commitments.....	8
8.2	General	8
9.0	Attachments.....	9
9.1	Attachment 1: Checklist for an HRA/LHRA Briefing - Sample.....	10
9.2	Attachment 2: Key Log for LHRA Keys – Sample	11

1.0 Introduction

1.1 This procedure describes the controls in place to access High Radiation Areas and Locked High Radiation Areas.

2.0 Scope

2.1 This procedure describes the processes to prevent unplanned personnel dose in High Radiation Areas (HRA) and Locked High Radiation Areas (LHRA). Access controls for Very High Radiation Areas are not addressed by this procedure since such entries are infrequent and controlled by site-specific reviews and authorizations.

2.2 The forms referenced by this procedure are examples used to describe the pertinent information that should be recorded for future reference. Plant procedures may specify the use of equivalent forms or the use of electronic media for the same purposes. For sites that utilize an electronic LHRA key issuance, keycards are used for key accountability and steps pertaining to the use of attachment 2 are not applicable. See site specific process for key issuance, return and transfer.

2.3 Member utilities are expected to use this standard to enable supplemental workers to transition between nuclear power plants. Compliance with these instructions is expected without additional site requirements or process deviations being imposed that may require additional training or challenge the performance of supplemental workers.

2.4 This procedure will be used to train and instruct supplemental radiological protection technicians. Member utilities will implement these process requirements in site procedures and update site procedures whenever requirements or process steps in this Nuclear Industry Standard Process (NISP) are revised. Current revisions are maintained on the INPO website.

3.0 Definitions

3.1 Terms, acronyms, and definitions are provided in NISP-RP-013, *Radiation Protection Standard Glossary of Terms*.

4.0 Responsibilities

4.1 Radiation Protection is responsible for the implementation of the requirements of this procedure per efficiency bulletin 17-01 and the Nuclear Industry Standard Process Initiative.

5.0 General Requirements

CAUTION

Plant Technical Specifications may have requirements in addition to those listed below. Comply with site procedures to enter an HRA or LHRA.

- 5.1 Provide each individual, or group of individuals if permitted by technical specifications, entering an HRA or LHRA with one of the following:
- 5.1.1 A radiation monitoring device that continuously indicates the radiation dose rate in the area.
 - 5.1.2 A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received; entry into such areas with this monitoring device may be made after the dose rates in the area have been determined and personnel have been made knowledgeable of them.
 - 5.1.3 An individual qualified in radiation protection procedures with a radiation dose rate monitoring device; this individual is responsible for providing positive radiation protection control over the activities within the area and should perform periodic radiation surveillance at the frequency specified in the radiation protection procedures or the applicable RWP.
 - 5.1.4 If permitted by plant technical specifications, the use of transmitting dosimeters. See site specific procedures for guidance on the use of remote monitoring for technical specifications high radiation entry requirements.
- 5.2 Conduct HRA/LHRA briefings for personnel entering the area to ensure an understanding of expected dose rates and protective measures.
- 5.2.1 ANSI qualified RP technicians may be exempted from the briefing requirement when entering the area per section 5.1.3 of this procedure.
 - 5.2.2 Individuals may be exempted from the briefing requirement in responding to either of the following conditions:
 - a. A medical emergency.
 - b. The Shift Manager has authorized entry for a time critical evolution such as response to:
 - Abnormal plant conditions.
 - A fire alarm.

- An event that could threaten nuclear safety such as a loss of shutdown cooling.
- A condition that needs to be evaluated for potential entry into an Emergency Action Level.

5.3 LHRA keys may be issued only by the following:

5.3.1 The site RPM.

5.3.2 The Operations Shift Manager.

5.3.3 Personnel authorized by the site RPM.

5.4 Issue keys to access LHRAs only to RP personnel who are ANSI qualified.

5.5 Key control programs to access LHRAs may vary among sites but should include the following elements:

5.5.1 Rules for positive custody that include:

- a. A formal checkout and return process.
- b. Locking the key cabinet following issuance or return of a key.
- c. A routine inventory that is performed at least daily.
- d. Attaching a device to keys to minimize the potential for misplacement.
- e. Established rules to transfer possession of a key in the plant.

5.5.2 A key for an LHRA should unlock only the access for that area.

5.5.3 Master keys may be used only for the following conditions:

- a. The site RPM has authorized issuance of a master key to perform multiple checks of locked doors/barriers that do not require entry past a door/barrier.
- b. A medical emergency.
- c. The Operations Shift Manager has authorized use of a master key for a time critical evolution as described in step 5.2.2.b.

5.5.4 A periodic review by an RP supervisor or designate to ensure the key log (Attachment 2) is properly maintained.

5.6 Control access into a LHRA while working inside the area by at least one of the following methods:

- 5.6.1 Lock the access only if workers can freely egress the area without the use of a key or attendant.
- 5.6.2 Maintain the access open with an Access Control Guard per NISP-RP-004, “Radiological Posting and Labeling”.
- 5.6.3 Maintain the access open with a flashing light and barrier per NISP-RP-004 if authorized by plant technical specifications.
- 5.7 A HRA/LHRA does not require posting if the area is completely enclosed by a substantial physical barrier that does not have openings or portals that enable personnel access (referred to as “cocooning”).
- 5.7.1 If the enclosed area is not posted as an HRA/LHRA, post the enclosure with a warning sign such as “Warning, do not remove, high radiation levels may result,” or “Danger, do not remove, very high radiation levels may result.”

6.0 Process Instructions

The use of briefings, key controls, and source controls are summarized below.

	BRIEFINGS	KEY CONTROLS	SOURCE CONTROLS
HRA	<ul style="list-style-type: none"> • Ensure Proper Dosimetry • Brief Expected Dose Rates • Use Attachment 1 as Job Aid 	None Required	<ul style="list-style-type: none"> • Secure Temporary Shielding • Secure Underwater Sources • Surveil Scaffold Construction • Control Lifting Devices
LHRA	<ul style="list-style-type: none"> • Ensure Proper Dosimetry • Brief Expected Dose Rates • Follow & Complete Attachment 1 	<ul style="list-style-type: none"> • ANSI Qualifications • Positive Custody • Records for Issue & Use • Second Checks for Barrier Integrity 	

6.1 Control Area Configurations

- 6.1.1 Install lock-wire, metal tie wraps, bolts, or other fasteners that would require a tool to remove or rearrange shielding if the removal or rearrangement of shielding could cause radiation levels to increase above the current area posting.
 - a. Post the shielding or shielded access with a warning sign such as “Warning, do not remove, high radiation levels may result,” or “Danger, do not remove, very high radiation levels may result.”
- 6.1.2 Establish controls to prevent items from being raised near or above the surface of spent fuel pools, reactor vessels, and flooded refueling cavities by using one or more

of the following controls if radiation levels could increase above the current area posting.

- a. Protective interlocks on equipment required to raise the item.
- b. Locked access by Radiation Protection to equipment that may be used to raise the item.
- c. Tie offs that are locked and controlled by Radiation Protection.
- d. Procedural controls on the use of equipment that may be used to raise an item, e.g. a refueling bridge.
- e. An Access Control Guard to prevent commencement of activities that may result in a LHRA.
- f. Continuous job coverage by an ANSI qualified technician to monitor conditions and stop work if pre-established criteria are exceeded.

6.1.3 Prevent uncontrolled access paths into HRAs and LHRAs due to the construction of scaffolding. Ensure postings and controls are established commensurate with scaffold construction per NISP-RP-004.

6.1.4 Ensure cranes and lifting devices in proximity to an LHRA are controlled per site procedures to prevent unauthorized entry into an LHRA or to prevent conditions resulting in a non-posted LHRA.

6.2 Conduct an HRA/LHRA Entry Briefing (CM-1)

6.2.1 Follow the instructions on Attachment 1 to conduct the briefing.

- a. Use the checklist as a job aid to brief personnel entering an HRA; signatures are not required.
- b. Complete the checklist and obtain signatures for entry into a LHRA.
- c. Retain completed checklists as directed by RP supervision.

6.3 Issue a Key to Access an LHRA

- 6.3.1 (Key Issuer) - Issue a LHRA key only under the following conditions:
- a. Access has been authorized by an RP supervisor or designee.
 - b. The key is issued only to RP personnel who are ANSI qualified.
- 6.3.2 (Key Issuer) - Issue a master key for LHRA access only under the following conditions:
- a. The RPM has approved issuance of a master key to perform multiple door/barrier checks that do not require entry past the door/barrier.
 - b. The Operations Shift Manager has authorized use of a master key for a time critical response due to abnormal plant conditions, including investigation of a fire alarm.
 - c. A medical emergency.
- 6.3.3 (Key Issuer) - Ensure the key possessor understands personal responsibilities to:
- a. Follow the established protocol if key possession is transferred to another individual.
 - b. Ensure keys are maintained in positive custody by only ANSI qualified RP technicians and RP supervision.
- 6.3.4 (Key Issuer) - Record the following on the “Key Issue” line on Attachment 2.
- a. Date and time of issuance.
 - b. Print and sign name.
 - c. Key identification number.
 - d. Door/barrier identification number or location.
 - e. The RWP number or name of the RP Supervisor or Operations Shift Manager authorizing the entry.
- 6.3.5 (Key Possessor) – Print name and sign in the “Key Issued To” block on Attachment 2.

6.4 Transfer Possession of an Issued LHRA Key

- 6.4.1 (Key Possessor) - Notify the authorized Key Issuer that an LHRA key is being transferred to another individual.

- a. Provide the name of the person receiving the key to the Key Issuer.
- b. Ensure the individual receiving the key is an ANSI qualified RP technician or RP supervision.

6.4.2 (Key Issuer) - Document the following on Attachment 2.

- a. Date and time of the transfer.
- b. Printed name of the person receiving possession.
- c. Print Key Issuer name and sign.

6.5 Terminate Access into an LHRA and Return the Key

6.5.1 (Key Possessor) - Ensure the LHRA door/barrier is locked after exiting the area for the final time.

- a. Ensure the locked door/barrier is sufficient to prevent inadvertent, unauthorized access.
- b. If the door/barrier cannot be secured and locked, maintain positive control over the entrance and notify RP supervision for assistance.

6.5.2 (Key Possessor) - Obtain a peer check to provide additional verification that the door/barrier is locked to prevent inadvertent, unauthorized access.

6.5.3 (Key Possessor) - Print name and sign on Attachment 2.

6.5.4 (Peer Checker) - Print name and sign on Attachment 2 that the door/barrier was verified to be locked.

6.5.5 (Key Issuer) - Return the key to the key cabinet.

6.5.6 (Key Issuer) - Print name and sign on Attachment 2 to document return of the key to the key cabinet.

7.0 Records/Documentation

7.1.1 Retain copies of documentation generated as a result of implementing this procedure in accordance with the provisions of the station records management program References.

7.2 Commitments

7.2.1 CM-1 LaSalle Commitment: 3-2004-009 for providing Radiation Protection aid for conducting HRA briefings (Attachment 1).

- 7.3 General
- 7.3.1 10 CFR Part 20.1601, “Control of Access to High Radiation Areas.”
- 7.3.2 Station Technical Specifications.
- 7.3.3 USNRC Information Notice 86-107, “Licensee Alert to Reactor Cavity (Incore Shaft) Entries.”
- 7.3.4 USNRC Information Notice 88-79, “Misuse of Flashing Lights for High Radiation Area Controls”.
- 7.3.5 WANO SOER 2001-1, “Unplanned Radiation Exposures.”
- 7.3.6 INPO 05-008, “Radiological Protection at Nuclear Power Plants”
- 7.3.7 NISP-RP-004, Radiological Posting and Labeling
- 7.3.8 NISP-RP-010, Radiological Job Coverage
- 7.3.9 NISP-RP-013, Radiological Protection Glossary
- 7.3.10 NRC Regulatory Guide 8.38, Control of Access to High and Very High Radiation Areas in Nuclear Power Plants

8.0 Attachments

- 8.1 Attachment 1 - Checklist for an HRA/LHRA Briefing - Sample
- 8.2 Attachment 2 – Key Log for LHRA Keys - Sample

Nuclear Industry Standard Process Access Controls for High Radiation Areas

Document #: NISP-RP-005

Revision: 1

ATTACHMENT 1 (CM-1) Checklist for an HRA/LHRA Briefing – Sample Page 1 of 1

Briefing Date/Time: _____ RWP#: _____ Rev#: _____

Room or Area to Enter: _____

Purpose of Entry: _____

NOTE

Completion of this checklist is required for an LHRA entry. Completion of the checklist is not required for an HRA entry but should be used as a guideline.

Ensure the briefing is conducted in an environment to minimize distractions. Maintain formality; **clearly announce that this briefing is being conducted in compliance with federal regulations.** Cover each of the topics listed below. Suspend the briefing and notify RP supervision if conflicts exist in implementing RWP requirements.

- ENSURE** the RWP allows access into the HRA/LHRA.
- ASK** if entrants have read and understand the RWP. If not, suspend the briefing until the RWP has been read by all entrants.
- DISCUSS** the radiological conditions of the area using the most current survey.
- ENSURE** the role of each entrant is understood and the expectations to minimize dose using low dose rate areas, and other ALARA measures as applicable.
- VERIFY** dosimeter setpoints are appropriate for the work based on expected radiation levels and discussed work activities.
- ASK** if anyone may have problems hearing dosimeter alarms. If yes, provide ancillary devices as needed; establish monitoring by telemetry or monitor stay times.
- ENSURE** entrants understand to check with RP to make sure conditions have not changed if they leave and then return to the area.
- EXPLAIN** that additional briefings are required for either of the following conditions:
 - Work scope changes.
 - Work scope involves high radiological risk; a briefing is required each shift as a minimum.

Briefing Provided By: _____ / _____
(Print) (Signature)

Briefing Received By:

(Print)	(Signature)	(Print)	(Signature)

**Nuclear Industry Standard Process
Access Controls for High Radiation Areas**

Document #: NISP-RP-005

Revision: 0

**ATTACHMENT 2
Key Log for LHRA Keys – Sample
Page 1 of 1**

KEY ISSUE	Date & Time	Key Issued By (Print & Sign)	Key Issued To (Print & Sign)
	LHRA Key Number	Door Number or Location	Approval Authorization (RWP Number or Printed Name)
LHRA VERIFICATION & KEY RETURN	*LHRA Locked By (Print & Sign / Date & Time)	LHRA Verified Locked By (Print & Sign / Date & Time)	Key Returned to Cabinet By (Print & Sign / Date & Time)
KEY TRANSFER	Date & Time	Key Transferred To (Print Name)	Transfer Recorded By (Print & Sign)
	Date & Time	Key Transferred To (Print Name)	Transfer Recorded By (Print & Sign)
	Date & Time	Key Transferred To (Print Name)	Transfer Recorded By (Print & Sign)

RP Supervisor/Designate Review (print/sign): _____ Date: _____

*If area is down-posted, record down-posted in this block and record n/a for verification.