

HRA / VHRA Access Control

Nuclear Secured / Radiation Safety

NS-RS-PR-208, 0

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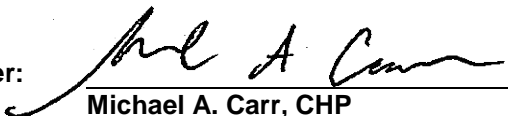
Nuclear Secured / Radiation Safety		HRA / VHRA Access Control	
Doc. No.: NS-RS-PR-208		Revision 0	Page 2 of 9

History and Approvals

History

Revision	Intent Y/N	Purpose description
0	Y	New Issue

Approvals

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Nuclear Secured / Radiation Safety		HRA / VHRA Access Control	
Doc. No.: NS-RS-PR-208		Revision 0	Page 3 of 9

Table of Contents

Chapter	Page
1. Purpose and Scope	4
1.1. Purpose	4
1.2. Scope	4
2. References	4
3. General	4
3.1. Definitions	4
3.2. Responsibilities	5
3.3. Precautions and Limitations	6
4. Pre-Requisites / Requirements	6
5. Procedure	6
5.1. General	6
5.2. Access Control	7
6. Records	7
7. Attachments and Forms	7

Nuclear Secured / Radiation Safety		HRA / VHRA Access Control	
Doc. No.: NS-RS-PR-208	Revision 0	Page 4 of 9	

1. Purpose and Scope

1.1. Purpose

The purpose of this procedure is to provide the access control requirements for High Radiation and Very High Radiation Areas (HRA / VHRA).

1.2. Scope

This procedure applies to all Nuclear Secured (NS) personnel and subcontractors where the NS Radiation Protection Plan (RPP) has been implemented for the management of the project site Restricted Areas.

2. References

- 2.1. 10CFR20 Subpart G, *Standards for Protection Against Radiation – Control of Exposure from External Sources in Restricted Areas*.
- 2.2. AE-SH-PR-002, *Incident Reporting and Notification*
- 2.3. NS-RS-PG-001, *Radiation Protection Program*
- 2.4. NS-RS-PR-102, *Project Records Management*
- 2.5. NS-RS-PR-201, *Radiation Work Permits*
- 2.6. NS-RS-PR-202, *Radiological Postings*
- 2.7. NS-RS-PR-500, *Personnel Monitoring*

3. General

3.1. Definitions

- 3.1.1. *Controlled Area* – An area, outside of a restricted area but inside the site boundary, to which access can be limited by the licensee for any reason.
- 3.1.2. *High Radiation Area (HRA)* – An area, accessible to an individual, in which radiation levels could result in an individual receiving a dose equivalent in excess of 100 mrem (1 mSv) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.
- 3.1.3. *Restricted Area* - Any area to which access is limited by the licensee for the purpose of protecting individuals against undue risk from exposure to radiation and radioactive materials.

Nuclear Secured / Radiation Safety	HRA / VHRA Access Control	
Doc. No.: NS-RS-PR-208	Revision 0	Page 5 of 9

- 3.1.4. *Very High Radiation Area (VHRA)* - An area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving an absorbed dose in excess of 500 rads (5 Gray) in 1 hour at 1 meter from the source or 1 meter from any surface that the radiation penetrates.

3.2. Responsibilities

Depending on personnel qualifications and the size of the project, project personnel may be assigned multiple roles and/or responsibilities.

3.2.1. NS Radiation Safety Officer

The NS Radiation Safety Officer (RSO) maintains and oversees the implementation of the NS RPP. The RSO shall ensure that radiation safety, radioactive materials management, and radiological operations procedures and programs are kept up to date such that they comply with current regulations and incorporate current and relevant industry practices and regulatory guidance.

3.2.2. Project Manager

The Project Manager (PM) is responsible for ensuring that the proper program procedures and programs are implemented on the project site as required by customer agreements and contracts. The PM is responsible for ensuring that these programs and procedures are properly incorporated into project specific plans and procedures. The PM is responsible for ensuring that the NS RPP and client programs and procedures, as applicable, are available for use by project personnel.

3.2.3. Project Health Physicist

The Project Health Physicist (PHP) is responsible for assisting the RSO in providing health physics support to the PM and Radiation Protection Supervisor (RPS). This includes technical support to ensure procedural and regulatory compliance and to ensure that the project-specific Data Quality Objectives (DQOs) are met.

3.2.4. Radiation Protection Supervisor

The Radiation Protection Supervisor (RPS) is responsible for implementing the NS RPP at the project location. The RPS manages and oversees the project personnel in regards to radiation safety and reports directly to both the PM and the RSO.

3.2.5. Health Physics Personnel

Health physics personnel are responsible for the proper control and access to the site Restricted Areas including High Radiation and Very High Radiation Areas.

Nuclear Secured / Radiation Safety	HRA / VHRA Access Control	
Doc. No.: NS-RS-PR-208	Revision 0	Page 6 of 9

3.3. Precautions and Limitations

- 3.3.1. Personnel should minimize their time within a posted HRA / VHRA because of the potential dose consequences.
- 3.3.2. Secondary dosimetry should consist of electronic dosimeters with established dose rate and cumulative dose alarms set by Health Physics.
- 3.3.3. Use temporary shielding to the maximum extent practical to reduce dose rates and to minimize personnel exposure.

4. Pre-Requisites / Requirements

- 4.1. HRAs / VHRAs shall be posted in accordance with NS-RS-PR-202, *Radiological Postings*.
- 4.2. Access to an HRA / VHRA shall require an Radiation Work Permit in accordance with NS-RS-PR-201, *Radiation Work Permits*.
- 4.3. Personnel shall be monitored for external exposure including secondary dosimetry when entering an HRA / VHRA in accordance with NS-RS-PR-500, *Personnel Monitoring*.
- 4.4. Declared pregnant women shall not be allowed to enter an HRA / VHRA.
- 4.5. Unnecessary entry to an HRA / VHRA is prohibited.
- 4.6. Interlocking mechanism or controls shall not be bypassed.

5. Procedure

5.1. General

- 5.1.1. Notify the RPS prior to entry to an HRA / VHRA.
- 5.1.2. Health Physics shall open or unlock the HRA / VHRA and perform a survey, as necessary, prior to allowing entry to the area.
- 5.1.3. While unlocked, the HRA / VHRA shall be attended by Health Physics personnel.
- 5.1.4. Personnel shall review the current radiological survey or obtain a briefing from Health Physics personnel prior to entry.
- 5.1.5. The PHP or RPS shall establish personnel stay times as necessary depending on the RWP requirements.
- 5.1.6. Health Physics shall set secondary dosimetry alarm setpoints (dose rate and cumulative dose) as applicable and as established by the PHP or RPS.

Nuclear Secured / Radiation Safety	HRA / VHRA Access Control	
Doc. No.: NS-RS-PR-208	Revision 0	Page 7 of 9

- 5.1.7. Record any accumulated dose while in the area on the RWP access logs in accordance with NS-RS-PR-201, *Radiation Work Permits*.
- 5.1.8. Inspect the area and verify all personnel have exited prior to securing an HRA / VHRA.
- 5.1.9. Notify the RPS once the HRA / VHRA is secured and return any access keys.

5.2. Access Control

- 5.2.1. HRAs / VHRAs shall be secured and locked when not attended.
- 5.2.2. The RPS shall maintain access control to any HRA / VHRA (i.e., key control).
- 5.2.3. For energized systems such as irradiators, each access or entry shall have either
 - 1) A control device that on entry into the area causes the levels of radiation to be reduced below HRA levels and/or
 - 2) A control device that energizes a conspicuous visible or audible alarm signal so that the individual entering the area and the supervisor of the activity are made aware of the entry.
- 5.2.4. Established access controls shall not limit or prevent individuals from leaving an HRA / VHRA.
- 5.2.5. Access control requirements are not necessary for packaged radioactive materials provided the package does not remain in the area in excess of 3 days and the dose rate at 1 meter from the exterior surface of the package does not exceed 0.01 rem (i.e., 10 mrem) per hour.
- 5.2.6. Measures shall be implemented to ensure that an individual is not able to gain unauthorized or inadvertent access to areas in which radiation levels could be encountered at 500 rads or more in 1 hour at 1 meter from a radiation source or surface through which the radiation penetrates (i.e., VHRA).

6. Records

- 6.1. RWP Access Log
- 6.2. HRA / VHRA Security Log
- 6.3. Surveys

7. Attachments and Forms

- 7.1. HRA / VHRA Security Log

Nuclear Secured / Radiation Safety		HRA / VHRA Access Control	
Doc. No.: NS-RS-PR-208	Revision 0	Page 8 of 9	

Attachment 7.1

HRA / VHRA Security Log

HRA / VHRA	Custodian	Date / Time		Attendant
		Unlocked	Secured	

Nuclear Secured / Radiation Safety**HRA / VHRA Access Control****Doc. No.: NS-RS-PR-208****Revision 0****Page 9 of 9**