ENTERED

Allen, Pam, NMENV

From: Maestas, Ricardo, NMENV
Sent: Tuesday, August 06, 2013 2:06 PM
To: Allen, Pam, NMENV
Subject: FW: HP 1500
Attachments: 12 HP 1500_Feb_2013.doc

Email and attachment for WIPP file

From: Kliphuis, Trais, NMENV
Sent: Monday, June 17, 2013 8:07 AM
To: De Saillan, Charles, NMENV
Cc: Maestas, Ricardo, NMENV; Holmes, Steve, NMENV; Smith, Coleman, NMENV
Subject: FW: HP 1500

Attached is the DOE Procedure for Radiological Posting and Access Control that I was waiting for and mentioned in the Friday email.

From: Basabilvazo, George - DOE [mailto:George.Basabilvazo@wipp.ws]
Sent: Sunday, June 16, 2013 9:40 PM
To: Kliphuis, Trais, NMENV
Subject: HP 1500

<<12 HP 1500_Feb_2013.doc>>

I was in earlier and forgot to send you a copy of this. Please let me know if you have questions.

Best regards,

George T. Basabilvazo

Director, Office of Environment, Safety & Health

DOE/Carlsbad Field Office

P.O. Box 3090

Carlsbad, New Mexico 88221

Ph: (575) 234-7488

Cell: (575) 706-0083

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Working Copy

WP 12-HP1500

Revision 16

Radiological Posting and Access Control

Technical Procedure

EFFECTIVE DATE: 02/06/13

R. A. Billett
APPROVED FOR USE

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CHANGE HISTORY SUMMARY

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
13	4/4/11	• Deleted steps 17.2 and 18.2, no longer performed. • Section 19.0 added information to Note and in steps 19.2 and 19.3 for Escort for nonradiological worker in RBA, RMA, Radiation Areas, or Contamination Areas.
14	07/29/11	• Added wording about unattended exempt sources to Note above step 1.1 • Deleted Note above step 2.1
15	12/05/12	• Updated Reference table. • Added to bullet 7 in Precautions and Limitations statement that RW trained individuals may assist RCT in erecting or modifying boundaries. • Added two new bullets at the end of the Precautions and Limitations section. • Deleted attachment 1 and changed all references in document to WP 12-HP1100 attachment 9. • Added a Note after step 19.1. • Deleted attachment 4. • Removed section 3.0 Note – last four sentences "The boundary for the RBA …". • Replaced in section 3.1 – "0.5" with "2".
16	02/06/13	• Editorial revision in accordance with MD 1.1.

INTRODUCTION

This procedure provides instructions for the following activities:

- Posting and access requirements for Controlled Areas, Radioactive Material Areas (RMAs), Radiological Buffer Areas (RBAs), and radiological areas (Radiation, High Radiation, and Very High Radiation Areas, Contamination and High Contamination Areas, and Airborne Radioactivity Areas)
- Labeling radioactive items and containers of radioactive materials

Performance of this procedure generates the following record(s), as applicable. Any records generated are handled in accordance with departmental Records Inventory and Disposition Schedules.

- Visitor orientation documents
- Entry in Radiological Control (RC) Logbook
- Attachment 2, Electronic Personnel Dosimeter Log Sheet

REFERENCES			
DOCUMENT NUMBER AND TITLE	BASELINE DOCUMENT	REFERENCED DOCUMENT	KEY STEP
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.501(a)	✓		1
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.501(b)	✓		2
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.501(c)	✓		3
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.501(d)	✓		4
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.501(e)	✓		5
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.502(a)	✓		6

REFERENCES			
DOCUMENT NUMBER AND TITLE	BASELINE DOCUMENT	REFERENCED DOCUMENT	KEY STEP
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.502 (b)	✓		7
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.502(d)	✓		8
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.601(a)	✓		9
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.601(b)	✓		10
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.602 (a)	✓		11
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.602 (b)	✓		12
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.603 (a)	✓		13
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.603 (b)	✓		14
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.603 (c)	✓		16
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.603 (d)	✓		15
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.603 (e)	✓		17
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.603 (f)	✓		18
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.604 (a)	✓		19
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.604 (b)	✓		20

REFERENCES			
DOCUMENT NUMBER AND TITLE	BASELINE DOCUMENT	REFERENCED DOCUMENT	KEY STEP
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.604 (c)	✓		21
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.606 (a)	✓		22
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart J 835.901 (a)	✓		23
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.901 (d)	✓		24
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart L 835.1102 (a)	✓		25
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart F 835.502 (c)	✓		26
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart G 835.605	✓		27
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart L 835.1102 (b)	✓		28
Title 10 Code of Federal Regulations (CFR) Part 835, "U.S. Department of Energy, Occupational Radiation Protection", Subpart L 835.1102 (e)	✓		29
DOE STD-1098-99, *Radiological Control*	✓		
ANSI N2.1-1971 (R1989), *Radiation Symbol*		✓	
Hazardous Waste Facility Permit NM4890139088 - TSDF	✓		30
WP 05-WH1724, *RH Hot Cell Complex Key Control*		✓	
WP 12-DS3326, *TLD Assignment, Issue and Retrieval*		✓	
WP 12-HP1100, *Radiological Surveys*		✓	
WP 12-HP3200, *Radioactive Material Control*		✓	
WP 12-HP3400, *Contamination Control*	✓		
WP 12-HP3600, *Radiological Work Permits*	✓		

EQUIPMENT

- Signs and inserts as specified in this procedure
- Yellow and magenta radiological tape and rope
- Stanchions

PRECAUTIONS AND LIMITATIONS [2, 3, 5, 8, 9, 10, 12, 19]

- Signs are used to meet ANSI (American National Standards Institute) N2.1-1971 radiation symbol specifications. The signs have a yellow background with magenta or black radiation symbol. The signs avoid conflicts with security requirements, and are approved by the Radiological Control Manager (RCM)/Radiological Control Superintendent (RCS).
- Radiological Control Technicians (RCT) must verify the effectiveness and operability of barricades, devices, alarms, and/or locks for High Radiation Areas (that are >1,000 mrem/hr [millirems per hour] at 30 cm [centimeters] from the source or from any surface that the radiation penetrates or where an individual could receive a whole body dose of 1,000 mrem in one hour) and Very High Radiation Areas. Physical access control will be verified on a weekly basis and logged in the RC Logbook.
- Signs used for training or demonstration purposes are to be clearly and conspicuously marked as such to clearly distinguish them from signs used to indicate actual conditions.
- No personnel access control, such as radiological rope or tape placed across door(s) to radiological areas, is to be installed in a manner that will prevent rapid evacuation of personnel during emergency conditions.
- The degree of personnel entry control is to be commensurate with existing and potential radiological hazards within radiological areas.
- If multiple radiological conditions exist in one location (e.g., Contamination Area **AND** High Radiation Area), every radiological condition must be clearly identified for that location. This can be accomplished by placing all information on one or more signs with the greatest hazard normally listed on top, the next hazard listed below that one, and so on.

- Only RCTs qualified to post radiological areas are authorized to modify radiological boundaries in any way (e.g., remove or change radiological signs, alter the size of radiological areas, RMAs, RBAs, or Controlled Areas by moving boundaries), Radiological Worker (RW) trained individuals may assist the RCT in erecting or modifying boundaries under the direct supervision of an RCT during normal operations.

- Boundary ropes, man doors, roll-up doors, etc., should be returned to normal configuration immediately after entering or exiting posted areas.

- Waste Handling Building Parking Area Unit is posted as Controlled Area. It does not require boundaries at vehicle entry and exit points.

- Areas may be exempted from posting requirements of sections 1.0 through 9.0 for periods of less than eight continuous hours when placed under continuous observation and control of an individual knowledgeable of and empowered to implement required access and exposure control requirements.

- Precautionary pre-posting of **HIGH RISK** areas shall be used to anticipate elevated radiological conditions. Some examples are:

  — Posting RBAs, Radiation Areas, and High Radiation Areas in the contact-handled (CH) Bay or remote-handled (RH) Bay before unloading TRUPACTs or Casks based on radiological survey data from the generator sites, the Waste Isolation Pilot Plant (WIPP) Waste Information System/Waste Data System (WWIS/WDS), or as determined by the RCT.

- Controlled Area signs used for radiological purposes should be selected to avoid conflict with Controlled Area signs used to comply with local security requirements.

- Individuals not qualified as Radworker I or II may enter RMAs and RBAs with a qualified escort after they have met the applicable requirements of WP 12-DS3326 and completed the required paperwork at Dosimetry.

- Controlled Area Postings/Boundaries shall not be contiguous with any other boundary for the Active Room(s) in the underground (U/G) Storage Panel, unless approved by the RCM/RCS, and should be posted near the intake and exit of the active room(s).

- During an abnormal event or emergency response, an RCT or the RCM/RCS may direct RW to erect or act as a radiological boundary.

- In accordance with Technical Basis Document 2011-004 individual Thermoluminescent Dosimeters (TLD) will not be issued to an individual or group of individuals entering an RBA, RMA and/or Radiation Area on an authorized tour. An additional TLD will be issued to the tour escort to provide the dose of record for each individual being escorted. The tour TLD meets the posting requirement for access to the RBA, RMA, and/or Radiation Area for the individuals being escorted.

PREREQUISITE ACTIONS [3, 10]

- Radiological posting and labeling shall be securely affixed and located such that signs and labels can be expected to remain in place when subjected to adverse conditions and environments.

- Inserts on signs shall contain verbiage from sections 1.0 through 9.0 at a minimum.

- Boundary identifiers and physical barriers shall be clearly visible to prevent inadvertent access to areas (e.g., barriers cannot be readily walked over or under). For example, rope barriers should be approximately 3 ft to 5 ft in height. The results of radiological monitoring should be used to determine the adequacy of boundary placement.

- Postings of doors are to remain visible when doors are open or closed. To accomplish this, a sign may be placed next to the doorway in addition to the sign on the door.

- Signs that include radiological conditions are to be maintained current and reflect the results of the most recent documented radiological surveys of the posted area performed in accordance with WP 12-HP1100.

PERFORMANCE

NOTE

Although a Controlled Area boundary may be contiguous with radiological boundaries, appropriate measures must be taken to ensure that personnel exposures are not exceeded (e.g., Controlled Area boundaries can be contiguous only with Radiation, High Radiation or Very High Radiation Area boundaries where there are physical walls or radiation shields that ensure that nonradiological workers will not receive >100 mrem in a year). If personnel exposures could be exceeded, then the Controlled Area boundary must be separated from the appropriate radiological area boundary.

1.0 POSTING CONTROLLED AREAS [11, 30]

NOTE

When accountable sources are left unattended, they are identified by a sign reading "Caution - Radioactive Material Area." This posting must be within or contiguous with a posted Controlled Area. Unattended exempt sources need only be identified by "Caution – Radioactive Material in Use" sign.

1.1 **IF** posting of a Controlled Area is for the Active Room in the U/G Storage Panel,
THEN go to step 1.3.

1.2 RCT, post boundaries of a Controlled Area so that the Controlled Area completely surrounds, or is contiguous with, any of the areas described in sections 2.0 through 9.0.

NOTE

Controlled Area posting for the Active Room in the U/G Storage Panel shall not be contiguous with any other radiological boundary/posting without approval of the RCM/RCS.

1.3 If the Controlled Area is not contiguous with another boundary, RCT, post boundary of Controlled Area as follows:

1.3.1 Post/Position signs so that they are clear and conspicuous.

1.3.2 Post each entry to Controlled Area.

1.3.3 Post Controlled Area boundary with signs containing the following:

- CAUTION, CONTROLLED AREA
- GENERAL EMPLOYEE TRAINING OR VISITOR ORIENTATION REQUIRED FOR ENTRY

1.3.4 **IF** the Controlled Area is being established for handling Site Derived Waste,
THEN add a sign that reads "RWP (Radiological Work Permit) REQUIRED" to the posting.[30]

1.3.5 **IF** the Controlled Area is contiguous with any of the areas described in sections 2.0 through 9.0,
THEN the Controlled Area sign is not required to have the following:

- GENERAL EMPLOYEE TRAINING OR VISITOR ORIENTATION REQUIRED FOR ENTRY

1.4 RCT, update radiological boundary operator aids, as applicable.

1.5 RCT, change or remove the Controlled Area postings, as required.

2.0 POSTING RADIOACTIVE MATERIAL AREAS [18, 20, 21, 25]

2.1 RCT, perform the following:

2.1.1 Determine areas that are accessible to individuals in which items or containers of radioactive material exist and the total activity of radioactive materials exceeds the values on attachment 1, Values for Establishing Sealed Radioactive Source Accountability and Posting and Labeling Requirements, of WP 12-HP3200.

2.1.2 Determine if area meets any of following criteria for an exemption from posting as an RMA:

- Areas containing only packages received from radioactive materials transportation, labeled and in nondegraded condition, until the packages are monitored in accordance with WP 12-HP3200.

- The radioactive materials in the area consists solely of structures or installed components which have been activated (e.g., by being exposed to neutron radiation or particles produced by an accelerator).

- Each item or container of radioactive material in the area is labeled in accordance with section 10.0 such that individuals entering the area are made aware of the hazard.

- Area is posted as a radiological area in accordance with sections 4.0 through 9.0.

NOTE

RMA boundaries may be contiguous with RBA boundaries and/or Controlled Area boundaries, but not outside of Controlled Areas.

2.1.3 **IF** area meets the criteria in step 2.1.1, **AND DOES NOT** meet any of the exemption criteria in step 2.1.2,
THEN post boundary of RMA with signs containing the following:

- CAUTION, RADIOACTIVE MATERIAL

- RADWORKER I TRAINING REQUIRED FOR ENTRY

2.1.4 Update radiological boundary operator aids, as applicable.

2.2 **WHEN** the criteria for an RMA no longer exists **OR** the radioactive material is no longer present,
THEN RCT, remove the RMA postings after performing radiological surveys, as applicable.

3.0 POSTING RADIOLOGICAL BUFFER AREAS [25,]

NOTE

The size of the RBA established for contamination control should include the area adjacent to any exit from and entrance to Contamination, High Contamination, and Airborne Radioactivity Areas.

An RBA established to limit exposure to external radiation should surround Radiation, High Radiation, and Very High Radiation Areas.

3.1 RCT, determine areas that are accessible to individuals where the general area radiation dose rate is known or anticipated to be >2 mrem/hr.

3.2 RCT, determine if area meets any of following criteria for an exemption from posting as an RBA:

- High Contamination or Airborne Radioactivity Areas that are completely within Contamination Areas
- Inactive Contamination, High Contamination, or Airborne Radioactivity Areas (i.e., areas to which entry has been prohibited by posting or barricades)
- Exposure control, if other posted boundaries or controls provide equivalent employee protection
- Exposure control, if general employees who are not trained as radiological workers are restricted from unescorted entry to Controlled Areas

3.3 RCT, **IF** the area meets the criteria in step 3.1 **AND DOES NOT** meet any of the exemption criteria in step 3.2,
THEN post boundary with signs containing the following:

- CAUTION, RADIOLOGICAL BUFFER AREA.
- THERMOLUMINESCENT DOSIMETER REQUIRED.
- **IF** waste handling activities are to be conducted within the RBA, **THEN** add "RWP REQUIRED FOR WASTE HANDLING."
- **IF** Contamination, High Contamination, and/or Airborne Radioactivity Area(s) are within the RBA,
THEN ADD "NO EATING, DRINKING, OR SMOKING."

3.4 RCT, update radiological boundary operator aids, as applicable.

3.5 **WHEN** the criteria for an RBA no longer exists, **OR** the radioactive material is no longer present,
THEN RCT, perform radiological surveys as necessary and remove the RBA postings.

4.0 POSTING RADIATION AREAS [3, 4, 13]

NOTE

An area through which radiation sources are being transported may not require posting as a Radiation Area, even though radiation levels >5 mrem/hr at 30 cm exist, as long as no individual will receive >5 mrem in an hour during transport.

4.1 RCT, determine areas that are accessible to individuals where the radiation dose rate is > 5 mrem/hr but < 100 mrem/hr at a distance of 30 cm from source of radiation **OR** from any surface through which radiation penetrates.

NOTE

Dose rates may be indicated on Radiation Area signs by RCT, as applicable.

4.2 RCT, post boundary of any area having radiation dose rate(s) specified in step 4.1 with signs containing the following:

- CAUTION, RADIATION AREA
- RWP REQUIRED

4.3 **WHEN** the criteria for a Radiation Area no longer exist **OR** the radioactive material is no longer present,
THEN RCT, remove the Radiation Area postings.

5.0 POSTING CONTAMINATION AREAS [3, 4, 17, 25, 28, 29]

5.1 RCT, perform the following:

5.1.1 Determine area(s) where contamination levels are >1, but <100 times removable contamination limits listed on attachment 9 of WP 12-HP1100, Surface Contamination Limits.

5.1.2 Post the boundary of the area meeting the criteria in substep 5.1.1 with signs containing the following:

- CAUTION, CONTAMINATION AREA
- RWP REQUIRED

5.1.3 Notify RCM/RCS of the contamination levels (when known) and boundaries present.

5.1.4 Update radiological boundary operator aids, as applicable.

5.1.5 **WHEN** the contamination levels in the area are <1 times the removable contamination limits listed on attachment 9 of WP 12-HP1100, including all items and equipment in the area, **THEN** remove the Contamination Area postings.

6.0 POSTING HIGH CONTAMINATION AREAS [3, 4, 18, 25, 28, 29]

6.1 RCT, perform the following:

6.1.1 Determine area(s) where contamination levels are >100 times the removable contamination limits listed on attachment 9 of WP 12-HP1100.

6.1.2 Post boundary of the area meeting the criteria in substep 6.1.1 with signs containing the following:

- DANGER (or CAUTION), HIGH CONTAMINATION AREA
- RWP REQUIRED

6.1.3 Notify RCM/RCS of the contamination levels (when known) and boundaries present.

6.2 RCM/RCS, ensure the control measures are commensurate with the physical and chemical characteristics of the radioactive contamination present.

6.3 RCT, update radiological boundary operator aids, as applicable.

6.4 **WHEN** the contamination levels are >1 but <100 times the removable contamination limits on attachment 9 of WP 12-HP1100 **THEN** RCT, **GO TO** section 5.0, and post area as a Contamination Area **OR** remove the High Contamination Area postings, as applicable.

7.0 POSTING AIRBORNE RADIOACTIVITY AREAS [3, 4, 15, 25, 28, 29]

7.1 RCT, **WHEN** airborne radioactivity levels are suspected or known to be > 0.3 derived air concentration (DAC) **OR** where a continuous air monitor (CAM), used to monitor for airborne radioactivity, alarm occurred, **THEN** post boundary of the area meeting the criteria with signs containing the following:

- CAUTION (or DANGER), AIRBORNE RADIOACTIVITY AREA
- RWP REQUIRED

7.2 RCT, notify RCM/RCS of the airborne concentrations (when known) and boundaries present.

7.3 RCT, update radiological boundary operator aids, as applicable.

7.4 RCT, **WHEN** the airborne radioactivity levels are <0.3 DAC **OR** CAM alarm has proven to be false,
THEN, remove the Airborne Radioactivity Area postings.

8.0 POSTING HIGH RADIATION AREAS [3, 4, 6, 7, 8, 14]

NOTE

An area through which radiation sources are being transported may not require posting as a High Radiation Area, even though radiation levels are >100 mrem/hr at 30 cm, as long as no individual will receive >100 mrem in an hour during transport.

8.1 RCT, determine if radiation dose rate in any accessible area is >100 mrem/hr at 30 cm but ≤500 rad per hour at a distance of 1 meter from the source of radiation or from any surface through which radiation penetrates.

CAUTION

Physical controls shall be required when an individual could exceed a deep dose equivalent of 1,000 mrem in any one hour at a distance of 30 cm from the source, or from any surface that the radiation penetrates.

NOTE

Dose rates may be indicated on High Radiation Area signs by RCT, as applicable.

8.2 RCT, post boundary of the area meeting the criteria in step 8.1 with signs containing the following, **AND** contact RCM/RCS.

- DANGER (or CAUTION), HIGH RADIATION AREA
- SUPPLEMENTAL DOSIMETER REQUIRED
- RWP REQUIRED

WARNING

To avoid harm to personnel, physical access control for High Radiation Areas shall **NOT** be established that would prevent or impede personnel from leaving the area!

8.3 RCM/RCS and Facility Shift Manager (FSM), approve and implement one or more of the physical access controls for the High Radiation Area using attachment 1, Control Devices for High Radiation Areas (when >1,000 mrem in One Hour).

8.4 RCM/RCS, perform walk through of areas prior to implementation of key control for High Radiation Areas (when >1,000 mrem in One Hour).

8.5 RCT, verify an approved physical access control is in place.

8.6 RCT, update radiological boundary operator aids, as applicable.

8.7 **WHEN** the criteria for a High Radiation Area no longer exists, **OR** the radioactive material is no longer present,
THEN RCT, remove the High Radiation Area postings **AND** verify physical access and key controls have been removed as approved by the FSM and RCM/RCS.

9.0 POSTING VERY HIGH RADIATION AREAS [3, 4, 8, 14, 16, 26]

9.1 RCT, determine if radiation dose rate in any accessible area is >500 rad per hour at a distance of 1 meter from the source of radiation or from any surface through which radiation penetrates.

NOTE

Dose rates may be indicated on Very High Radiation Area signs by RCT, as applicable.

9.2 RCT, post boundary of the area meeting the criteria in step 9.1 with signs containing the following, **AND** contact RCM/RCS:

- GRAVE DANGER, VERY HIGH RADIATION AREA
- SPECIAL CONTROLS REQUIRED FOR ENTRY

WARNING

To avoid harm to personnel, physical access for Very High Radiation Areas shall **NOT** be established that would prevent personnel from leaving the area!

9.3 RCM/RCS and FSM, approve and implement one or more of the physical access controls for the Very High Radiation Area listed in attachment 1.

9.4 RCM/RCS, perform walk-through of areas prior to implementation of key control for Very High Radiation Areas.

9.5 RCT, verify an approved physical access control is in place.

9.6 RCT, update the radiological boundary operator aids, as applicable.

9.7 **WHEN** the criteria for a Very High Radiation Area no longer exists, **OR** the radioactive material is no longer present,
THEN RCT, remove the Very High Radiation Area postings **AND** verify physical access and key controls have been removed as approved by the FSM and RCM/RCS.

10.0 LABELING RADIOACTIVE MATERIALS [9, 22, 25, 27]

10.1 RCT, determine items or containers of radioactive material with activities > 10% of the values on attachment 1 of WP 12-HP3200, or greater than 0.1 Curie.

10.2 RCT, determine if the item or container of radioactive material meets any of the following criteria for an exemption from labeling requirement:

- Used, handled, or stored in areas posted in accordance with sections 2.0 through 9.0, controlled in accordance with WP 12-HP3200, and sufficient information is provided to permit individuals to take precautions to avoid or control exposures.

- Packaged, labeled, and marked in accordance with the regulations of the U.S. Department of Transportation or U.S. Department of Energy Orders governing radioactive material transport.

- Inaccessible, or accessible only to individuals authorized to handle or use them, or to work in the vicinity.

- Installed in manufacturing process, or other equipment, such as reactor components, piping, and tanks.

- The radioactive material consists solely of nuclear weapons or their components.

- Radioactive material labels applied to sealed radioactive source may be exempted from color specifications (yellow, and magenta or black).

10.3 **IF** item or container meets the criteria in step 10.1 **AND DOES NOT** meet the criteria in step10.2,
THEN RCT, place on the item or container a durable, clearly visible label bearing the standard radiation warning trefoil and the words "CAUTION (OR DANGER) RADIOACTIVE MATERIAL" with sufficient information to permit individuals handling, using, or working in the vicinity of the item or container to take precautions to avoid or control exposures.

11.0 LABELING HOT SPOTS [9]

NOTE

Labeling of Hot Spots is not required in areas with general area dose rates >1 rem/hr. However, the locations of such hot spots should be noted on area surveys and discussed in pre-job briefings when applicable.

11.1 RCT, determine if there is a spot on a source of radiation or on a surface, through which radiation penetrates, that is >100 mrem/hr on contact **AND** is five times greater than the general area dose rate.

11.2 RCT, place on (or as near the spot as possible) a durable, clearly visible label bearing the standard radiation warning trefoil and the words "CAUTION, HOT SPOT."

11.3 RCT, notify the RCM/RCS.

11.4 **WHEN** the criteria for a Hot Spot no longer exists, **OR** the radioactive material is no longer present,
THEN RCT, remove the Hot Spot label (if possible) and notify RCM/RCS.

12.0 CONTROLLED AREA ACCESS [23]

12.1 Cognizant Individual (CI), obtain and maintain current General Employee Radiological Training (GERT) to enter Controlled Areas unescorted.

NOTE

Any employee requiring access into an area defined in this procedure, other than the Controlled Area, must perform the actions as stated in the applicable sections (sections 13.0 through 18.0) or be escorted as a nonradiological worker into RBAs or RMAs only, in accordance with section 19.0.

13.0 RADIOLOGICAL BUFFER AREA ACCESS [23]

13.1 CI, perform the following to obtain authorized, unescorted access into RBAs:

- Obtain and maintain current RW-I, RW-II, or RCT training/qualification.
- Obtain assigned TLD from Dosimetry.

13.2 CI, obey all area radiological postings and controls prescribed by the RCT.

14.0 RADIOACTIVE MATERIAL AREA ACCESS [23]

14.1 CI, obtain and maintain current RW-I, RW-II, or RCT training/qualification.

14.2 CI, obey area radiological postings and controls prescribed by the RCT.

15.0 RADIATION AREA ACCESS [1, 3, 4, 23]

15.1 CI, perform the following to obtain authorized, unescorted access into Radiation Areas:

- Obtain and maintain current RW-I, RW-II, or RCT training/qualification.
- Obtain assigned TLD from Dosimetry.
- Obtain supplemental dosimeter as prescribed by the RWP or RCT, if applicable.
- Obtain assignment to RWP authorizing access to Radiation Area.

15.2 **IF** supplemental dosimeter is prescribed for entry into the Radiation Area, **THEN** CI, **GO TO** section 20.0, check in to the Radiation Area, **AND RETURN TO** step 15.3.

15.3 CI, obey area radiological postings and controls prescribed by the RWP and the RCT.

16.0 HIGH/VERY HIGH RADIATION AREA ACCESS [1, 3, 4, 6, 7, 23, 26]

16.1 CI, perform the following to obtain authorized, unescorted access into High Radiation Areas:

- Obtain and maintain current RW-II or RCT training/qualification.
- Ensure one person entering the area is qualified to use **AND** has a dose rate meter that has a valid operational check.
- Obtain assigned TLD from Dosimetry.
- Obtain assignment to RWP authorizing access to a High Radiation Area.
- Obtain supplemental dosimeter as prescribed by the RWP or RCT.

16.2 **GO TO** section 20.0, check in to the High Radiation Area, **AND RETURN TO** step 16.3.

16.3 CI, obey area radiological controls prescribed by the RWP and the RCT.

17.0 CONTAMINATION AREA ACCESS [1, 3, 4, 23, 28, 29]

17.1 CI, perform following to obtain authorized, unescorted access into Contamination Areas:

- Obtain and maintain current RW-II or RCT training/qualification.
- Obtain assigned TLD from Dosimetry, if applicable.
- Obtain assignment to RWP authorizing access to Contamination Area.
- Obtain protective clothing and dosimetry as prescribed by the RWP.

17.2 CI, obey area radiological postings and controls prescribed by the RWP and the RCT.

18.0 HIGH CONTAMINATION/AIRBORNE RADIOACTIVITY AREA ACCESS [1, 3, 4, 23]

18.1 CI, perform the following to obtain authorized, unescorted access into High Contamination and/or Airborne Radioactivity Areas:

- Obtain and maintain current RW-II or RCT training/qualification.
- Obtain assigned TLD from Dosimetry, if applicable.
- Obtain assignment to RWP authorizing access to High Contamination and/or Airborne Radioactivity Areas.
- Obtain protective clothing, respiratory protection, and dosimetry as prescribed by the RWP.

18.2 CI, obey area radiological controls prescribed by the RWP and the RCT.

19.0 NONRADIOLOGICAL WORKER OR ESCORTED ACCESS CONTROL [23, 24]

NOTE

Nonradiological workers (i.e., general employees, visitors, vendors, etc.) are **NOT** to enter Radiological Areas described in sections 6.0 to 9.0.

Nonradiological workers may be escorted into RBAs, RMAs, Radiation Areas, or Contamination Areas by a qualified radiological worker.

19.1 Escort, if a nonradiological worker is scheduled to enter a Controlled Area, verify that nonradiological worker has completed Radiological Visitor Briefing (orientation) prior to allowing entry into Controlled Area.

NOTE

Nonradiological workers entering an RBA, RMA, and/or Radiation Area as part of a facility tour will not be issued individuals TLDs. The escort will carry an additional TLD which will be used to provide the dose or record for each individual being escorted.

Nonradiological workers entering an RBA, RMA and/or Radiation Area to perform work will be issued an individual TLD.

19.2 Escort, if nonradiological worker is scheduled to enter an RBA, RMA, or Radiation Area perform following:

- Obtain permission from the Radiological Control & Dosimetry (RC&D) Manager in writing.

- Obtain assigned TLD from Dosimetry for the nonradiological worker being escorted.

- Complete and sign escort form as required by Dosimetry Team Leader.

19.3 Escort, if nonradiological worker is scheduled to enter a contamination area, perform the following:

- Obtain permission from the RC&D Manager and Safety and Health Manager in writing.

- Obtain assigned TLD from Dosimetry for the nonradiological worker being escorted.

- Complete and sign escort form as required by Dosimetry Team Leader.

NOTE

When escorting a nonradiological worker into an RMA, RBA, Radiation Area, or Contamination Area, the escort is not allowed to perform hands-on work. The nonradiological worker **SHALL NOT** receive >100 mrem in a year. A nonradiological worker performing work (preventative maintenance, corrective maintenance, or plant modification) in an RMA, RBA, Radiation Area, or Contamination Area, must have a dedicated escort (one-on-one).

19.4 Provide continuous escort for visitor while inside the RMA, RBA, Radiation Area, or Contamination Area.

20.0 RADIOLOGICAL AREA ACCESS CONTROL [1, 3]

20.1 Worker, if Computerized Access Control system is available and operable, log in to Computerized Access Control system; if Computerized Access Control system is not available or is inoperable, log in on attachment 2.

20.2 Worker, perform work in compliance with RWP.

20.3 Worker, log out of the Computerized Access Control system, **OR** on attachment 2, as applicable.

20.4 RCT, when the binder containing attachment 2 documents is not being used frequently for access control, place the binder in a fireproof cabinet near the access point for easy access if needed.

NOTE

Either an RCT or the as low as reasonably achievable (ALARA) Coordinator, can obtain the attachment 2 form from sign-in locations.

20.5 ALARA Coordinator, perform a monthly update of the electronic personnel dosimeter (EPD) database using attachment 2, as applicable, **THEN** forward the completed attachment 2 to RCM/RCS.

20.6 RCM/RCS, review completed attachment 2 and forward it to the Records Coordinator for filing and disposition.

Attachment 1 – Control Devices for High Radiation Areas (When >1,000 mrem in One Hour) or Very High Radiation Areas [1, 2, 3, 8]

1. A control device that prevents entry to the area when high radiation levels exist (>1,000 mrem [millirem] in one hour), or upon entry, causes the radiation level to be reduced below that level.

2. A device that functions automatically to prevent use or operation of the radiation source or field while personnel are in the area.

3. A control device that energizes a conspicuous visible or audible alarm signal so that a person entering the High Radiation Area (>1,000 mrem in one hour) or Very High Radiation Area, and the supervisor of the activity, are made aware of the entry.

4. Entryways that are locked, except during periods when access to the area is required, with positive control over each entry.

5. Continuous direct or electronic surveillance that is capable of preventing unauthorized entry.

6. A control device that automatically generates audible and visual alarm signals to alert personnel in the area before use or operation of the radiation source and in sufficient time to permit evacuation of the area or activation of a secondary control device that will prevent use or operation of the source.

Attachment 2 – Electronic Personnel Dosimeter Log Sheet

Printed Name Last, First, MI	TLD#	Entry					Exit		Net EPD Reading
		Date / Time	RWP#	EPD#	EPD Calib. Due Date	EPD Reading	Date / Time	EPD Reading	

RWP - Radiological Work Permit EPD - electronic personnel dosimeter

EPD Database Updated by: [ ] N/A _____
ALARA Coordinator Printed Name Signature Date

Reviewed by:_____
RCM/RCS Printed Name Signature Date