




SNS-OPM 2.H-13
Hold For Radiation Safety (RS Hold)

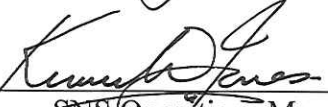
Before using a printed copy, check the *last modified date and revision number* against the **OFFICIAL COPY** on the SNS-OPM website.


Signed archival copies are maintained by the SNS Document Control Center.


Hand Processed Changes


<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____


Approved:  03.21.2016
 RAD Division Director Date

Approved:  03.21.2016
 SNS Operations Manager Date

Approved:  3/16/2016
 SNS Radiation Safety Officer Date

Approved:  3-16-16
 RAD Accelerator Operations Manager Date

Approved:  3/21/16
 RAD Mechanical Systems and Operations Group Leader Date

Approved:  3-16-2016
 ISD SNS Instrument Operations Manager Date

Contacts: [Don Gregory](#) (SNS Radiation Safety Officer)
[SNS-OPM Editor](#)

SNS-OPM 2.H-13
Hold for Radiation Safety (RS Hold)

1. Purpose and Scope

At SNS it is essential to maintain a safe configuration for personnel protection from radiation hazards. Three key elements are used to maintain configuration for this purpose: credited engineered controls as specified in the approved SNS Accelerator Safety Envelope ([SNS ASE](#)), shielding that may be fixed or movable, and administrative control through hold for radiation safety (RS Hold). The relationship between these three elements and their systems is shown in Figure 1. Administrative control through the RS Hold is established in, but is not limited to, the following applications:

- To control the configuration of components of Critical Devices,
- To protect workers during certification and testing of credited engineered controls (CEC's)
 - CEC - Controls that provide essential primary protection against serious worker injury or fatality.
- To protect workers when a credited engineered control (or portions thereof) is not operable,
- To control devices that limit beam power,
- To control devices that block secondary neutron beams, and
- To control configuration of movable shielding.

This procedure implements the administrative control aspect of maintaining a safe configuration for personnel protection from radiation hazards at SNS through the RS Hold program.

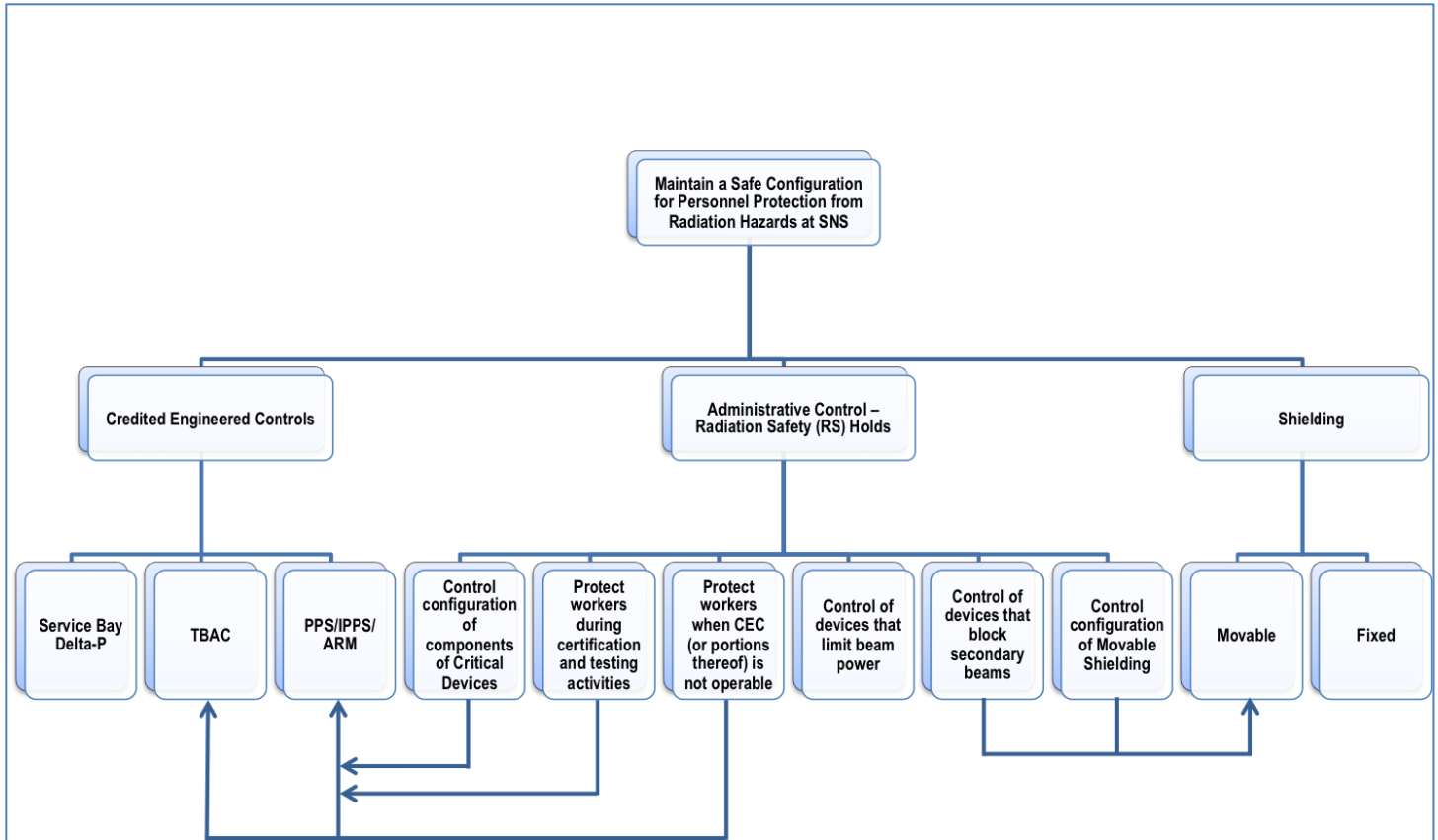


Figure 1

2. Responsibilities

- 2.1 The SNS Operations Manager is responsible for overall management of the RS Hold program.
- 2.2 For this procedure, **Management** (delegates must also be trained) shall be defined as:
 - 2.2.1 “Accelerator Management” (for Accelerator and Beam Test Facility (BTF) applications):
 - RAD Accelerator Operations Manager,
 - RAD Accelerator Operations Coordinator, and
 - PPS Test Director (for BTF and accelerator certifications only which includes TPPS)
 - 2.2.2 “Target Management” (for Target applications):
 - RAD Mechanical Systems and Operations Group Leader,
 - RAD Target Operations Shift Technician Team Leader, and
 - PPS Test Director (for target certifications only which includes TPS)

- 2.2.3 “Instrument Management” (for Instrument applications):
- ISD SNS Instrument Operations Manager,
 - ISD Instrument Hall Coordinators Team Leader, and
 - PPS Test Director (for instrument beam line certifications only)
- 2.2.4 People delegated to serve in management positions identified above, if not appropriately trained, may not authorize, apply or remove RS holds.
- 2.3 The ONLY persons authorized to **apply** or **remove** an **RS Hold** tag and lock are the appropriate, RS Hold trained and qualified:
- SNS Radiation Safety Officer (**RSO**),
 - Accelerator Management,
 - RAD Control Room Shift Supervisors (**CRSS**),
 - RAD Control Room Accelerator Specialist (**CRAS**),
 - Target Management,
 - RAD Target Operations Shift Technicians (**OST** - for Target applications),
 - Instrument Management,
 - ISD Instrument Hall Coordinators (**IHC** - for Instrument applications), and
 - Protection Systems Team Engineer (**PSTE**)
- 2.4 The SNS RSO, or the Operations Coordinator will provide both the initial and periodic training to the other personnel listed in Section 2.3, who will be implementing this procedure.
- 2.4.1 The initial training covers the RS Hold procedure and the attachments in their entirety. The initial training is instructor led done in a classroom setting.
- 2.4.2 The periodic training is a web based training module, which consists of reviewing this procedure every 2 years, and taking a test given through the LRN System. This periodic training is assigned to the positions listed in Section 2.3.
- 2.5 Once they have the above **RS Hold** training, personnel must use **RS Hold only** on those areas and equipment with which they are knowledgeable. Personnel are knowledgeable about the device being locked out if they can verify that the Lockout will achieve the intended purpose.
- 2.6 Personnel applying an RS Hold are responsible for identifying the **application purpose** (Accelerator (includes BTF), Target, or Instrument) on the **RS Hold Log Sheet**. Consult with appropriate Management or the SNS RSO, if the application purpose is not clear.
- 2.7 Personnel applying an RS Hold are responsible for stating a **reason** on the **RS Hold Log Sheet**. Consult with appropriate Management or the SNS RSO, if the reason is not clear.

- 2.8 Every RS Hold has a reason. Every reason (due to radiation hazards) has an RS Hold. A device might have multiple RS Holds on it, each one with a different and unique reason. Personnel shall never use one RS Hold for multiple reasons or fail to apply an RS Hold because an RS Hold is already on a device for a different reason.
- 2.9 The appropriate **Management** (Accelerator, Target, or Instrument) is responsible for authorizing the removal of RS Holds applied for only their application purpose as indicated on the **RS Hold Log Sheet**.
- 2.9.1 **Temporary Removal of RS Holds:**
- 2.9.1.1 Verbal approval may be given by the appropriate management (Accelerator, Target, Instrument), to a qualified individual (see 2.3 above) to temporarily remove an RS Hold with the intention of reapplying the same RS Hold. The only duty of the qualified individual from the time the RS Hold is removed until the time it is reapplied is to ensure by personal observation that the hazard stated in the reason for the RS Hold remains mitigated.
- 2.10 Personnel removing RS Holds are responsible for ensuring that the conditions listed on the RS Hold tag have been satisfied or that another RS Hold providing equivalent safety has been applied before removing the RS Hold or they are following the temporary removal provision described in Section 2.9.1 above.
- 2.11 All personnel must follow the restrictions stated on the **RS Hold** tag. The configuration of the system under RS Hold and the **RS Hold** Tag and Lock must not be disturbed except as noted in 2.9.1 above.

3. **Prerequisites**

- 3.1 **Radiation Safety Hold Points (RS Hold Points):**
Systems that are routinely locked out with RS Holds shall be locked at a pre-determined and approved **RS Hold Point** to provide a non-ambiguous radiation safety lockout. See Attachment [2.H-13.c](#) for the Approved Radiation Safety Hold Points.
- It is preferred that the **RS Hold Point** is able to be locked in addition to the required tagging. If no lock can be placed, securely fasten the **RS Hold Yellow Tag** using a non-reusable nylon cable tie with a tensile pull breaking strength of no less than 50 pounds.
- 3.2 Radiation Safety Locks, RS Hold tags, and non-reusable nylon cable ties are stored in the Central Control Room (CCR).

4. Precautions

4.1 **Consultation:**

Before initiating an **RS Hold**, decide which radiation producing equipment, beam line(s), shielding, etc. must be safely secured. To ensure that the necessary and sufficient **RS Hold(s)** is(are) applied, and to identify the appropriate application purpose (accelerator, target, or instrument), consult with one or more of the following:

- SNS RSO,
- Accelerator Management (for Accelerator applications),
- Target Management (for Target applications),
- Instrument Management (for Instrument applications), or
- Control Room Shift Supervisor

4.2 **Hazardous Energy Control and Lock-Out Tag-Out:**

WARNING:
RS Hold does **not** replace **Lock-Out Tag-Out (LOTO)** requirements. **LOTO** may be necessary to ensure removal of other hazardous sources of energy.
(See the Standards-Based Management System (SBMS) [Lockout/Tagout subject area](#))

4.3 **Critical Devices and Shielding:**

4.3.1 PPS critical devices that are bypassed by PPS personnel shall have a “CEC Bypass” stamp on the RS Hold Log sheet. The removal of the RS Hold shall require the date removed and signature of a CEC System engineer filled in on the bottom of the stamp area as well as the signature from the appropriate management identified on the RS Hold Log Sheet.

5. Procedure

5.1 **APPLICATION of the RS Hold**

5.1.1 Obtain an **RS Hold Lock** and **Key** from the **RS Hold Station** in the CCR.

5.1.2 Obtain a uniquely numbered **RS Hold Yellow Tag** ([SNS-OPM-ATT 2.H-13.a](#)) from the Central Control Room (CCR).

5.1.2.1 Complete all blank lines on the **RS Hold Yellow Tag**.

- The following personnel qualified in the positions listed below who have had RS Hold training, may apply an RS Hold labeled (on the RS Hold Tag) as applied by “(name of person) as _____ (fill in the name of the appropriate position listed below)”:
 - Control Room Shift Supervisor (CRSS)
 - Control Room Accelerator Specialist (CRAS)
 - Target Operations Shift Technician (OST)
 - Instrument Hall Coordinator (IHC)
 - Radiation Safety Officer (RSO)
 - PST Engineer (PSTE)

5.1.2.2 Make sure the **RS Hold Yellow Tag** and **Stub** have matching numbers, locations, and persons indicated.

5.1.3 Obtain an **RS Hold Log Sheet** ([SNS-OPM-ATT 2.H-13.b](#)) from the CCR or print one from the SNS-OPM website.

5.1.3.1 Complete all required lines on the **RS Hold Log Sheet** in Sections 1 through 5.

- The following personnel qualified in the positions listed below who have had RS Hold training, may apply an RS Hold labeled (on the RS Hold Log Sheet) as applied by “(name of person) as _____ (fill in the name of the appropriate position listed below)”:
 - CRSS
 - CRAS
 - OST
 - IHC
 - RSO
 - PSTE

5.1.4 Place the **RS Hold Yellow Tag** and the **Lock** on the appropriate lockout device indicated in “**Approved Radiation Safety Hold Points**” ([SNS-OPM-ATT 2.H-13.c](#)).

- If **no** lockout device is present, if **no RS Hold Locks** are available at the **RS Hold Station**, if **no** approved **RS Hold Point** exists, or if any other situation arises that impedes RS Hold from being applied in a normal fashion, then the SNS RSO and appropriate Management must determine how to proceed.

- If no lock can be placed, securely fasten the **RS Hold Yellow Tag** using a non-reusable nylon cable tie with a tensile pull breaking strength of no less than 50 pounds.

5.1.5 Remove the **Stub** from the **RS Hold Yellow Tag** and attach the **Key**.

5.1.5.1 If only a tag, and not a lock, is applied then attach the **Stub** to the **RS Hold Log Sheet**.

5.1.6 Proceed to Section 5.3 for Verification.

5.2 **RS Hold Point Extension**

NOTE:

In order to avoid confusion with Lock-Out / Tag-Out, one should not use Red Group LOTO Lockboxes for **RS Hold Point Extensions**.

5.2.1 An **RS Hold Point Extension** is defined as extending a single **RS Hold Point** (as specified in [SNS-OPM-ATT 2.H-13.c.](#)) to an **RS Hold Point Extension Lockbox**.

5.2.1.1 Do not use the **RS Hold Point Extension Lockbox** to lock out multiple **RS Hold Points**.

5.2.2 The designated employee is responsible for performing Section 5.1 of this procedure to lock out an appropriate device.

5.2.2.1 The reason for the RS Hold on the **RS Hold Logsheet** (item 3) shall be “**RS Hold Point Extension**”.

5.2.2.2 In the Warning section of the **RS Hold Tag**, state “**RS Hold Point Extension**”.

5.2.3 Once Step 5.3.3 is complete, the designated employee shall place the **Key** and **Stub** in an **RS Hold Point Extension Lockbox** located in the CCR. The **RS Hold Point Extension Lockbox** shall:

- contain only the designated individual’s **Key** and **Stub** used to perform the initial **RS Hold**,
- have a see-through cover to allow for a visual confirmation of the contents, and
- be kept in the CCR for the duration of the RS Hold Point Extension.

5.2.4 To ensure the safekeeping of the contents in the RS Hold Point Extension Lockbox, the designated employee shall lock the **RS Hold Point Extension Lockbox** with an additional **RS Hold** following Section 5.1 of this procedure.

5.2.4.1 The location on the RS Hold Logsheet (item 1) shall be “**RS Hold Point Extension Lockbox in the CCR**”.

5.2.4.2 The reason for the RS Hold on the RS Hold Logsheet (item 3) shall be:

- **RS Hold Point Extension**
- **Device:** (device name)

5.2.4.3 For the Special Removal Instructions, state “**must be the last RS Hold removed from the RS Hold Point Extension Lockbox**”.

5.2.4.4 In the Warning section of the RS Hold Tag, state the following:

- **RS Hold Point Extension**
- **Device:** (device name)

5.2.5 Proceed to Section 5.3 for Verification.

5.3 VERIFICATION and DOCUMENTATION of the RS Hold

NOTE:

The status of the beam line or other radiation producing equipment can be affected by more than one **RS Hold** and not just the one you have applied.

5.3.1 After the **RS Hold** tag and lock have been applied, another knowledgeable person shall:

- independently verify the application of the **RS Hold** tag and lock,
- be knowledgeable about the device being locked out and can verify that the Lockout will achieve the intended purpose and
- sign Step 6 in the **RS Hold Log Sheet**.

5.3.2 Have the on-duty CCR operations personnel sign Step 7 on the RS Hold Log Sheet.

5.3.3 Place the completed **RS Hold Log Sheet** in the “Active” **RS Hold Binder** in the CCR.

5.3.4 Have the on-duty CCR operations personnel place the **Key** and **Stub** from the **RS Hold Yellow Tag** into the **RS Hold Lockbox**, which is maintained in the CCR, unless it is going to be placed inside an RS Hold Point Extension Lockbox.

5.4 NORMAL REMOVAL of the RS Hold

5.4.1 Inform the on-duty CCR operations personnel that you are going to remove the **RS Hold** from the area specified on the **RS Hold Log Sheet**.

- 5.4.1.1 If the RS Hold was applied by an individual (not by position), the **RS Hold** must be removed by the individual who applied the **RS Hold**.
- 5.4.1.2 If that individual is not available, THEN the **RS Hold** may be removed by others by either following the “**Three-Person Rule**” as prescribed in Section 5.5 of this procedure or following the “**Personnel of Equivalent Position Rule**” as prescribed in Section 5.6.
- 5.4.2 Verify that all restrictions/conditions listed on the RS Hold Log sheet have been met. The RS Hold may not be removed unless conditions listed on the RS Hold Log Sheet have been met or an equivalent RS Hold has been applied.
- 5.4.3 Obtain approval from the appropriate Management as identified on the RS Hold Log Sheet. The appropriate Management should sign (item 9) of the RS Hold Log Sheet indicating the condition that required the use of the RS Hold has been cleared (item 3 on the RS Hold Log Sheet). Management shall authorize the removal of RS Holds applied for their application purpose only as indicated on the **RS Hold Log Sheet**. The signature may be delegated by the appropriate Management over the phone during after hours operations.
- 5.4.4 On-duty operations personnel shall remove the **Key** and **Stub** from the **RS Hold Lockbox** in the CCR.
- 5.4.5 Remove the **Lock** and **RS Hold Yellow Tag** from the **RS Hold Point**.
 - 5.4.5.1 Return the equipment to operating condition if necessary and authorized.
- 5.4.6 Return the tag to the CCR and complete and sign the appropriate RS Hold Log Sheet (Item 9) in the Active RS Hold Binder.
- 5.4.7 Staple the Yellow Tag and Stub on the back side of the RS Hold Log Sheet, and place them in the RS Hold Archive.
- 5.4.8 Return the Lock and Key to the **RS Hold Lock Rack** in the CCR.
- 5.5 **REMOVAL of the RS Hold by SOMEONE OTHER THAN WHO APPLIED IT ("Three-Person Rule")**
 - 5.5.1 Attempt to contact the originator of the tag.
 - 5.5.1.1 Verify that the person who applied the **RS Hold Yellow Tag** and **Lock** is not at the SNS site by having the CCR page the originator of **RS Hold**, and attempt other means of contact (work phone, cell phone, pager, etc.).
 - 5.5.1.2 If the person who applied the RS Hold is available to remove it, follow Section 5.4 “Normal Removal”. If they are not available, proceed to the next step.

- 5.5.2 Fill out Form “**Removal of SNS RS Hold by Others**” (see [SNS-OPM-ATT 2.H.13.d.](#)).
- 5.5.2.1 IF the originator of the tag **is contacted** by telephone AND that person can verify that the removal of the **RS Hold Yellow Tag** and **Lock** is OK THEN complete item 4 on form. Only two people are required to perform the removal in this case:
- The SNS RSO and
 - One person from the “Authorized Person” list from [SNS-OPM-ATT 2.H.13.d.](#)
- 5.5.2.2 If the originator of the tag **cannot be contacted**, then complete item 5 on form. Note that the procedure for the **Three-Person Rule** must be followed to perform the removal in this case. The members of this Three-Person committee shall consist of the following:
- The SNS RSO
 - One member from the “Appropriate Management” list and
 - One member from the “Authorized Person” list from [SNS-OPM-ATT 2.H.13.d.](#)
- 5.5.3 Notify any affected persons working in the area that the RS Hold is about to be removed, and proceed only if there are no objections.
- 5.5.4 Remove the RS Hold Yellow Tag and Lock using steps in Section 5.4, but if the key to the lock is not available, the lock shall be cut off.
- 5.5.5 Attach the completed form “Removal of SNS RS Hold by Others” to the original “RS Hold Log Sheet” and place in the RS Hold Archive Binder in the CCR.
- 5.5.6 Within a reasonable period of time and **prior** to these persons specified below **resuming work**, notify **both** the **originator** of the **RS Hold** and the **supervisor** of the **originator**, via email or written, dated notice at that person’s work station. If the lock was cut off, then the cut off lock shall also be left for the **originator** of RS Hold.

5.6 Personnel of Equivalent Position Rule

NOTE:

If any ambiguity regarding the RS Hold exists, then contact the originator of the tag before proceeding.

- 5.6.1 The **RS Hold** may be removed by the present “Control Room Shift Supervisor on-duty / Control Room Accelerator Specialist on-duty / Target Operations Shift Technician on-duty / Instrument Hall Coordinator on-duty / Radiation Safety Officer on-duty / PST Engineer on-duty”, or personnel of equivalent position in consultation with and the approval of the appropriate Management as prescribed in this section below.
 - 5.6.1.1 Only a RS Hold trained Control Room Shift Supervisor or Control Room Accelerator Specialist may remove an RS Hold applied by another Control Room Shift Supervisor or Control Room Accelerator Specialist.
 - 5.6.1.2 Only a RS Hold trained Target Operations Shift Technician may remove an RS Hold applied by another Target Operations Shift Technician.
 - 5.6.1.3 Only a RS Hold trained Instrument Hall Coordinator may remove an RS Hold applied by another Instrument Hall Coordinator.
 - 5.6.1.4 Only a RS Hold trained Radiation Safety Officer may remove an RS Hold applied by another Radiation Safety Officer.
 - 5.6.1.5 Only a RS Hold trained PST Engineer may remove an RS Hold applied by another PST Engineer.
- 5.6.2 Obtain approval from appropriate Management. – i.e. signature on bottom (item 9) of RS Hold Log Sheet. Note: The Management signature may be delegated by Management over the phone during after hours operations.
- 5.6.3 Complete item 9 on the RS Hold Log Sheet, signing “(name of remover) as CRSS ” / “(name of remover) as CRAS ” / “(name of remover) as OST” / “(name of remover) as IHC / “(name of remover) as RSO” / “(name of remover) as PSTE”.
- 5.6.4 Notify any affected persons working in the area that the RS Hold is about to be removed, and proceed only if there are no objections.
- 5.6.5 Remove the **RS Hold Yellow Tag and Lock** using steps in Section 5.4.

6. Documentation

- 6.1 **RS Hold Log Sheet Active Binder** in the CCR.
- 6.2 **RS Hold Archive Binder** in the CCR.

7. References

- 7.1 ORNL Standards-Based Management System: Radiological Protection.
https://sbms.ornl.gov/sbms/SBMSearch/Msd/RPS/RPS_MSD.cfm
- 7.2 ORNL Standards-Based Management System Subject Area: Lockout/Tagout.
<https://sbms.ornl.gov/sbms/SBMSearch/subjarea/LOTO/sa.cfm>

8. Attachments

- 8.1 SNS-OPM-ATT 2.H-13.a. Yellow Tag for Radiation Safety Hold (RS Hold).
<http://ns-staff.ornl.gov/operations/SNS-OPM/02-H-13-a.pdf>
- 8.2 SNS-OPM-ATT 2.H-13.b. RS Hold Log Sheet.
<http://ns-staff.ornl.gov/operations/SNS-OPM/02-H-13-b.pdf>
- 8.3 SNS-OPM-ATT 2.H-13.c. Approved Radiation Safety Hold Points.
<http://ns-staff.ornl.gov/operations/SNS-OPM/02-H-13-c.pdf>
- 8.4 SNS-OPM-ATT 2.H-13.d. Form for the Removal of SNS RS Hold by Others.
<http://ns-staff.ornl.gov/operations/SNS-OPM/02-H-13-d.pdf>

9. Revision History

- Rev. 5 November 08, 2013 – Updated the signatory page with correct titles to reflect recent reorganization of RAD and ISD, Incorporated HPC 2008-4 **Purpose and Scope** Section revised to discuss and show the relationship of the 3 key elements used to maintain a safe configuration for personnel from radiation hazards and specifically the administrative control using RS Holds, **Responsibilities** Section (2.1) added/defined SNS Operations Manager role, (2.2) is now the Management Section revised to include PPS Test Director for the 3 management areas, (2.3) is now the Section defining the persons authorized to apply and remove RS Holds, added CRAS and PSTE to this section, (2.4) defines the initial and periodic training (2.7) added personnel are responsible for stating a reason for the RS Hold, added a note defining the concept of every RS Hold has a unique reason and every reason has a unique RS Hold, Section (2.8.1) added a “Temporary Removal of RS Holds” section, Section (2.10) added exception to account for temporary removals, **Prerequisites** Section (3.1) removed label references for RS Hold points since they are not labeled and defined the 50# rating for nylon cable ties, Section (4.2) title changed to Hazardous Energy Control LOTO from Electrical Safety LOTO, Section (4.3) **Critical Devices and Shielding** revised to not require dual RS Holds for critical devices and shielding and added in requirement for the CEC bypass stamp for PPS critical devices that are bypassed on the RS Hold Log Sheet, **Procedure** section removed the Note preceding Section (5.1) , Section (5.1) removed the notification of the CRSS that the RS Hold procedure has begun, Sections (5.1.2.1.1 and 5.1.3.1.1) added PST Engineer (PSTE)

and CRAS to the lists, Section (5.1.4) replaced Accelerator Management with appropriate Management, **RS Hold Point Extension** Section (5.2) removed “Only the appropriate Management may initiate an RS Hold Point Extension” and “The appropriate Management must delegate primary responsibility to a designated RS Hold trained and qualified employee to perform RS Hold Point Extension”, removed the part regarding placing the RS Hold log sheets in the active binder as this is done in the Verification Section (5.3), **Verification and Documentation of the RS Hold** Section (5.3) replaced the requirement to record the application of the RS Hold in the E-Log with having the on-duty CCR operations personnel sign Step 7 on the RS Hold Log sheet, (5.3.4) added in an exception to account for the special case of an RS Hold Point Extension, **Normal Removal of the RS Hold** Section (5.4) Warning Box revised to incorporate “Personnel of Equivalent Position Rule” removed the CRSS requirement to ensure conditions are met for removal (the appropriate management is sufficient for this), added in “on-duty CCR operations personnel” (these words now gives the CRAS the ability to remove the key and stub from the RS Hold lockbox), removed references to RS Hold Point Extension, as the process is clear from the conditions stated on the form, the yellow tag and stub now get stapled to the back side of the RS Hold Log Sheet (easier for DCC to scan and file), **Section (5.6) “On-duty Rule”** renamed to “**Personnel of Equivalent Position Rule**”, removed the requirement to verify the original person who applied the RS Hold is not on site, added the words “or personnel of equivalent position” to allow removal by qualified personnel of equivalent position, added in the CRAS and PST Engineer as additional positions allowed to remove RS Holds, added **Revision History** Section 9 heading requirement, updated the links. The following attachments have been revised as well:

- Attachment 2.H-13.a Rev.3 November 08, 2013 - Updated the signatory page with correct titles to reflect recent reorganization of RAD.
- Attachment 2.H-13.b Rev.4 November 08, 2013 - Updated the signatory page with correct titles to reflect recent reorganization of RAD and ISD, added a drop down list of positions in Step 4, added interactive date fields in Steps 4, 6, and 7, removed Requested by (print, sign, date and time fields), changed “Control Room Shift Supervisor” to “CCR operations personnel” to allow the on-duty CRAS to be notified and sign for being notified of RS Hold application, modified the following in the “Removed By” section; second choice modified to reflect personnel of equivalent position and updated the list to include the CRAS and PSTE, and added “AS” followed by a blank field (for putting in the position).
- Attachment 2.H-13.c Rev.9 November 08, 2013 - Updated the signatory page with correct titles to reflect recent reorganization of RAD and ISD, updated RS Hold points for the Ion Source 65kV pwr supply, MEBT Rebunchers, and MEBT BS, appended the words “of cables” to the end of the notes for HEBT DH11, 12-18, Ring Ext Septum, and RTBT DH13 (better defines what we are preventing re-configuration of), added the words “When TBAC is not functional” after Intra-Bay Doors, added the following; DTL 1 & 2 waveguides with shorting plates installed, and spare PPS keys for the Linac, HEBT, Ring, RTBT, Ring Inj. Dump, and Target areas.

- Attachment 2.H-13.d Rev.5 November 08, 2013 - Updated the signatory page with correct titles to reflect recent reorganization of RAD and ISD, updated correct titles to reflect recent reorganization of RAD and ISD in the “Authorized Person” and “Appropriate Management” sections on page 3, added the word “Applied” under the Date and Time fields (defines the date and time better, could be interpreted as today’s date and time), removed the “Person Releasing Key and badge No. fields, removed references to DRCO, Switched appropriate management to b and authorized person to c (since appropriate management is listed in c and therefore should be defined in b).
- Rev. 6 March 16, 2016 –**Purpose and Scope** Section revised to include a definition for CEC’s, **Responsibilities** Section (2.2.1) added BTF to Accelerator Management Section Section (2.2.4) incorporates the contents of the Note in this section, (2.6) includes BTF for Accelerator for the application purpose (2.8.) incorporates the contents of Note box into this section, Section (2.10 & 2.11) revised the section number referenced here, **Precautions** Section (4.2) revised the Warning box to reference the SBMS Lockout/Tagout subject area, **RS Hold Point Extension** Section (5.2) moved up the Note box which preceded 5.2.4 to now precede 5.2.1, Section (5.2.1) incorporated contents of Note box to be 5.2.1.1, **Verification and Documentation of the RS Hold** Section (5.3.1) incorporated the contents of Note box into this section, **Normal Removal of the RS Hold** Section (5.4.1) incorporated the contents of Warning box into this section, **Removal of the RS Hold by Someone Other Than Who Applied It (“Three-Person Rule”)** Section (5.5) incorporated the contents of Note box in this section to section 5.5.2, **Personnel of Equivalent Position Rule** Section (5.6) incorporated the contents of the Warning box in this section to section 5.6.1 and the contents of the Note box in this section to sections 5.6.1.1, - 5.6.1.5, **References** Section 7 revised the links to point to SBMS for LOTO, **Revision History** Section 9 updated.
 - Attachment 2.H-13.a Rev.3.1 March 16, 2016 – Triennial review – no changes.
 - Attachment 2.H-13.b Rev.5 March 16, 2016 - Triennial review - “**Removed By**” section - second choice modified to be simpler and less ambiguous (removed the list of titles for personnel of equivalent position).
 - Attachment 2.H-13.c Rev.10 March 16, 2016 – Triennial review - Added 2 and 13 Mhz disconnect switch locations as well as the upstream breaker for these disconnects for the front end Ion Source system. Also added in RS Hold point locations for the Beam Test Facility (BTF) in the last 2 pages.
 - Attachment 2.H-13.d Rev.6 March 16, 2016 - Triennial review – Added BTF to Accelerator Management Section of the Appropriate Management list.