

Idaho National Laboratory

| | |
|---------------------------|---|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 1 of 25 |

| | | | |
|-----------------------------|------------------------|-------------------|--------------------|
| Materials and Fuels Complex | Laboratory Instruction | USE TYPE 2 | eCR Number: 620967 |
|-----------------------------|------------------------|-------------------|--------------------|

Manual: MFC RSWF Operating Instructions (OI)

TSR RELATED PERMIT RELATED

| PROCEDURE REVIEW REQUIREMENTS PER SP-20.1.4 | | | |
|---|----------|------------------------------|----------|
| DISCIPLINE | REVISION | DISCIPLINE | REVISION |
| PIE FACILITIES (HFEF, NRAD, TREAT) | N/A | INTER-FACILITY TRANSFERS | N/A |
| RESEARCH LABS (AL, EFF, EML, FASB, IMCL, RCL) | N/A | MAINTENANCE | N/A |
| SECURE FACILITIES (FMF, SSPSF, ZPPR) | N/A | NUCLEAR SAFETY REVIEW | X |
| SPENT FUEL FACILITIES (FCF, MSCC, ORSA, RSWF, SCMS, SSB, TREAT-WH) | X | OUTSIDE REVIEW | N/A |
| BALANCE OF PLANT | N/A | PACKAGING AND TRANSPORTATION | N/A |
| CUI REVIEW | N/A | QUALITY | * |
| ENGINEERING | N/A | RADIOLOGICAL CONTROLS | * |
| ENVIRONMENTAL | * | SAFEGUARDS AND SECURITY | N/A |
| FIRE PROTECTION | N/A | S&T | N/A |
| HOISTING AND RIGGING | * | TRAINING | N/A |
| INDUSTRIAL HYGIENE | * | WASTE GENERATOR SERVICES | N/A |
| INDUSTRIAL SAFETY | * | | |
| *DOCUMENT OWNER OR QUALIFIED REVIEWER SHALL DETERMINE THE NEED FOR THESE REVIEWS BASED UPON THE SCOPE OF THE CHANGE AND THE HAZARDS IDENTIFIED | | | |

Idaho National Laboratory

| | | |
|---------------------------|-----------------|-------------|
| STORAGE OPERATIONS | Identifier: | RSWF-OI-001 |
| | Revision: | 14 |
| | Effective Date: | 06/02/14 |

Page: 2 of 25

REVISION LOG

| Rev. | Date | Affected Pages | Revision Description |
|------|----------|----------------------------------|---|
| 0 | 01/25/02 | All | New issue. |
| 0a | 02/19/02 | 4 | Change. |
| 0b | 05/13/02 | 3-5, and 9 | Change. |
| 0c | 02/19/03 | 1-7, and 9 | Change. |
| 0d | 04/23/03 | 1, 2, 4, and 7 | Change. Includes periodic review. |
| 1 | 07/11/05 | 1 through 8 | Revision. Includes periodic review. |
| 2 | 07/10/06 | 1-8, and 13 | See DAR 504644. Revision. |
| 3 | 11/21/06 | 1-11 | See DAR 509765. Revision. Includes periodic review. |
| 4 | 08/30/07 | All | See eCRs 551489, 551554. Revision and conversion to LI. |
| 5 | 12/13/07 | 4, 5, 7, and 9-15 | See eCRs 556327 and 556487. Permanent field change. |
| 6 | 05/13/08 | 11-12, 14, 18 | See eCR 557785. Permanent field change. |
| 7 | 07/29/08 | 5, 9, 11, 16 and 18 | See eCR 561090. PFC. |
| 8 | 06/11/09 | All | See eCRs 569431 and 562963. PFC and revision. |
| 9 | 06/30/09 | All | See eCR 570563. Revision. |
| 10 | 06/11/10 | All | See 577282, 578421, and 579144. PFCs and revision. |
| 11 | 04/21/11 | All | See eCR 590718.PFC. |
| 12 | 08/23/12 | All | See eCR 605938. SAR-407 implementation and periodic review. |
| 13 | 03/25/13 | 7, 10, 12, 14, 15, 18,21, and 22 | See eCR 607400. PFC. |
| 14 | 06/02/14 | All | See eCR 620967. PFC. |

| | | |
|---------------------------|--------------------------|---------------|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 | |
| | Revision: 14 | |
| | Effective Date: 06/02/14 | Page: 3 of 25 |

1. PURPOSE/SCOPE/APPLICABILITY

To provide instructions for receiving radioactive scrap and waste for storage at RSWF. Movement of material within or out of RSWF must be performed in accordance with RSWF-OI-002, "Retrieval of Material from 16-in. and 26-in. Liners."

Transfers involving mixed waste must be performed in compliance with the Resource Conservation and Recovery Act (RCRA) Permit (PER-116, "HWMA RCRA Partial Permit Materials and Fuels Complex").

This procedure is performed by Material Services-Handling personnel unless otherwise specified.

The activities directed by this procedure have been designated Quality Level 2 per Quality Level Determination MFC-000249.

This procedure implements requirements as identified in SAR-407, "Safety Analysis Report for the Radioactive Scrap and Waste Facility (MFC 771)" and TSR-407, "Technical Safety Requirements for the Radioactive Scrap and Waste Facility (MFC 771)."

Idaho National Laboratory

| | |
|---------------------------|---|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 4 of 25 |

2. RISK AND CONTROLS

| Sequence of Basic Activities | Potential Hazard | Hazard Control |
|--|---|---|
| 1. Storage of storage can. | 1. Radiation/contamination | 1. 1) Radiological Work Permit. 2) Temporary/portable shielding when necessary. 3) Extended boom to minimize exposure to crane operator. |
| 2. Heavy equipment operation/cask operation. | 2a. Damage to equipment | 2a. Equipment operations must be performed by Materials Handling-Services (MS) personnel. |
| | 2b. Transfer path disturbed or unstable | 2b. 1) If disturbed, test drive a forklift with empty cask over the path. Heavy equipment, which has not been evaluated for load effects on the storage liners at RSWF per ECAR-1827, "RSWF Equipment Loading Adjacent to Liners," must be restricted to the maintained roadway that runs inside the perimeter fence of RSWF. 2) Maintain loads close to the ground during movement. |
| | 2c. Personnel injury | 2c. 1) Rope and post the field work area to limit to authorized personnel and to identify proper PPE to enter the work area. 2) Where overhead hazards exist, hard hats are to be used to protect workers. 3) Maintain contact (verbal or approved signals) with the forklift or crane operator during use. |

Idaho National Laboratory

STORAGE OPERATIONS

Identifier: RSWF-OI-001

Revision: 14

Effective Date: 06/02/14

Page: 5 of 25

| Sequence of Basic Activities | Potential Hazard | Hazard Control |
|--------------------------------|--|---|
| | | 4) Ensure high visibility garments are worn by persons in proximity to operating equipment. 5) Ensure handrail is installed on the cask adapter for personnel access. Ensure the safety line is fastened between handrails.. |
| 3. Hoisting and rigging. | 3. Personnel injury and equipment damage | 3. 1) Use extra caution when working on transfer casks and using heavy equipment. 2) Rigging and hoisting equipment annual-inspection certification verified prior to use. 3) Personnel must wear safety shoes, hardhats, and leather gloves and keep hands clear of pinch points. 4) Make sure the load is attached securely and that the correct lifting equipment is used. 5) Never travel suspended loads over personnel. 6) A load indication device shall be used to prevent inadvertent equipment overload. 7) The load indication device shall be in current calibration. |
| 4. Cutting, welding, grinding. | 4a. Personnel burns and eye damage | 4a. 1) Wear required PPE per LRD-14406. 2) Welding operation performed per Designated Hot Work Permit. |
| | 4b. Unintentional fire | 4b. Cutting and welding operation per Designated Hot Work Permit. |

Idaho National Laboratory

STORAGE OPERATIONS

Identifier: RSWF-OI-001

Revision: 14

Effective Date: 06/02/14

Page: 6 of 25

| Sequence of Basic Activities | Potential Hazard | Hazard Control |
|---------------------------------------|----------------------------|--|
| 5. Handling compressed gas cylinders. | 5a. Missile hazard | 5a. 1) Maintain cylinder caps installed during transport. 2) Ensure cylinders are stored and moved in an upright position and properly restrained. 3) Safety shoes and cut-resistant gloves must be worn by personnel handling compressed gas cylinders. |
| | 5b. Cuts and lacerations | 5b. Wear cut-resistant gloves. |
| 6. Elevated work. | 6. Slips and falls | 6. 1) Use extra caution when working on transfer casks and using heavy equipment. 2) Ensure handrail is installed on the cask adapter for personnel access. Ensure the safety line is fastened between handrails. 3) Use extra caution when working on transfer casks and using heavy equipment. |
| 7. Working near open liner. | 7. Falls/tripping | 7. Cover open liners when left unattended. |
| 8. Hazardous/uneven walkways. | 8. Falls, slips, and trips | 8. 1) Watch for uneven ground, above ground liners, and concrete rows. 2) Observe and be aware of potential tripping hazards presented by positioning devices, liners, retrieval cables, concrete rows, and heavy equipment. 3) Remove excess snow in work area and wear proper footwear for slick surfaces. |

Idaho National Laboratory

STORAGE OPERATIONS

Identifier: RSWF-OI-001

Revision: 14

Effective Date: 06/02/14

Page: 7 of 25

| Sequence of Basic Activities | Potential Hazard | Hazard Control |
|----------------------------------|---------------------------------------|---|
| 9. Weather conditions. | 9. Personnel injury, slips, and falls | 9. 1) Use extra caution when working on transfer casks and using heavy equipment. 2) Discontinue work and seek shelter per LWP-16108 or at the direction of the SS. 3) Crane operations must be suspended when sustained winds are >25 mph. TSR-407, AC 5.407.2 4) Do not perform cask operations when temperatures are <-40°F. 5) Supervisor shall establish heat/cold stress stay times (when necessary) per LWP-14606, "Heat and Cold Stress." |
| 10. Using hand held power tools. | 10. Shock and sprains | 10. 1) Use GFCI protected circuits or portable GFCI device. 2) GFCI protection devices shall be tested per manufacturer's instructions. 3) Inspect power cord and tool for damage before use. 4) Employees' hands shall not be wet when plugging and unplugging flexible cords and cord-and-plug-connected equipment if energized equipment is involved. 5) Make sure tool guards are in place and properly adjusted. 6) Ensure safety switches are operational. |

Idaho National Laboratory

| | |
|---------------------------|---|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 8 of 25 |

| Sequence of Basic Activities | Potential Hazard | Hazard Control |
|------------------------------|----------------------------------|---|
| | | 7) Worker must not have loose clothing, straps, jewelry, drawstrings, or unrestrained long hair that could become entangled in rotating equipment. 8) Ensure material is properly secured and braced. |
| 11. Working in RSWF. | 11. Snake/insect bites or stings | 11. 1) Visually inspect area for snakes/stinging insects prior to work. 2) Contact the TSD Facilities Manager to have any snakes/biting insects found removed from the work area. 3) If bitten or stung, notify supervisor and seek immediate medical attention. 4) There is a potential for snakes to take shelter under material lying on the ground; use caution when moving material lying on the ground undisturbed. Do not reach under material until you know there are no snakes under it. |
| 12. Elevated work/ladders. | 12. Falling | 12. 1) Tie off ladder or ensure ladder hooks are secure at the top prior to work. 2) Tools will not be carried up or down. 3) Tools carried in belt-fastened pouches or raised/lowered by hand line. 4) Maintain three points-of-contact while ascending/descending a ladder. |

| | |
|---------------------------|---|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 9 of 25 |

2.1 Training Required

2.1.1 All Personnel

- 00INL288, Personal Protective Equipment
OR
QLHAZ24T, 24-HR TSD WKR (OSHA HAZWOPER)
- QN00RAD1, INL RAD Worker 1
OR
QN00RAD2, INL RAD Worker 2, for unescorted access.

2.1.2 Material Handling-Services (as applicable to task performed)

- QNHSWING, Swing Cab Tel Boom Crane Operator
- QNRIGGER, Rigger
- QNFKL002, Forklift Operator
- QNTSDFEO, EO TSDF Support Personnel
- QNMFHEEO, Heavy Equipment Operator.

2.1.3 Shift Supervisor (SS)

- QLHAZ24T, 4-HR TSD WKR (OSHA HAZWOPER).

2.2 Precautions/Limitations

- 2.2.1 All transfers must be made in accordance with the requirements of RSWF-OI-004, "Administrative Requirements/Process for Material Transfers."
- 2.2.2 A mobile crane and forklift (25 ton) are required to perform this procedure. All heavy equipment operation and hoisting and rigging must be performed by Materials Handling-Services personnel. Heavy equipment operations must be in accordance with LWP-14104, "Heavy Industrial Equipment."
- 2.2.3 The RSWF has access requirements and is controlled in accordance with the RSWF Security Plan, which is available through the TSD Facilities Manager.
- 2.2.4 Request for material storage must be made by the originating facility in accordance with RSWF-OI-003, "Material Acceptance for Storage."

| | | | |
|---------------------------|-----------------|-------------|----------------|
| STORAGE OPERATIONS | Identifier: | RSWF-OI-001 | |
| | Revision: | 14 | |
| | Effective Date: | 06/02/14 | Page: 10 of 25 |

- 2.2.5 Material to be stored at RSWF must meet the requirements specified in RSWF-OI-003.
- 2.2.6 The transfer of any accountable nuclear material to or from RSWF must be accompanied by appropriate Safeguards documentation (reference RSWF-OI-005, “Nuclear Material Control Plan”).
- 2.2.7 Welding associated with this procedure is on A-36 carbon steel (no material certification required). Weld in accordance with INL Welding Manual, Specification C3.0.
- 2.2.8 The cathodic protection system must be verified to be operational prior to loading material (scrap or waste) into a liner.
- 2.2.9 The shield plug must be kept dry and caution must be taken to prevent snow/water from entering the liner. A liner that contains water must not be used for storage.
- 2.2.10 If a problem is encountered that will prevent completion of this procedure, all work must be stopped, the TSD Facilities Manager notified, and the actions necessary to place the facility/liners in a safe configuration determined as follows:
- The actions to be performed must be documented in an appropriate form (e.g., work orders specific instructions, nonroutine procedure), commensurate with the complexity of the evolution
 - All actions must comply with applicable facility regulations (RCRA permit, Safety Analysis Report [SAR]/Technical Safety Requirements [TSR] [SAR/TSR-407] and RSWF-OI-005)
 - IF a liner contains material requiring containment (e.g., RCRA regulated material or fuel), THEN the instructions must also include directions on how to meet this requirement (such as welding the shield plug in place)
 - The instructions must be reviewed as determined by the TSD Facilities Manager and must include, as a minimum, the SS and Nuclear Safety Engineering personnel, and approval by the TSD Facilities Manager.
- 2.2.11 The bottom shield door on the HFEF-14 Cask does not contain positive stops to prevent the door from coming completely out. Use caution when rolling the bottom shield door open. Only roll the door out to the “MAX OPEN” line painted on the door.

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 11 of 25 |

SAR-407 Safety Analysis Commitment

- 2.2.12 Keep heavy equipment 6 ft away from 48 in. and 60 in. liners.
- 2.2.13 OPS/MS: IF radiological conditions exceed the limiting conditions that void the RWP at any point in this procedure, THEN stop work, place work area in a safe condition, and notify TSD Facilities Manager and HP Supervisor.

2.3 TSR Requirements

- 2.3.1 The following TSR-407 Limiting Conditions for Operation (LCOs) and Administrative Controls (ACs) are applicable to the work scope addressed in RSWF-OI-001.

| TSR | |
|-----------------|-----------------------------------|
| LCO/SAC 3.407.1 | Container Position |
| LCO/SAC 3.407.2 | Supplemental Radiological Control |
| AC 5.407.1 | Container Handling Limit |
| AC 5.407.2 | RSWF In-facility Movements |
| AC 5.407.3 | Cask Seating Requirement |
| AC 5.407.4 | Staffing Requirement |
| AC 5.407.5 | Soil Excavation Control |
| AC 5.407.6 | Criticality Safety Controls |

3. PREREQUISITES

3.1 Planning and Coordination

- 3.1.1 Originating Facility: Obtain and complete applicable portions of Section 1 of RSWF-OI-003, Appendix A, RSWF Material Acceptance Checksheet. Forward the RSWF Material Acceptance Checksheet to the SS.
- 3.1.2 TSD Shift Supervisor (SS): Complete applicable portions of Section 1 of RSWF Material Acceptance Checksheet.

TSR-407, AC 5.407.6

- 3.1.3 SS: Verify material to be stored at RSWF complies with the requirements of LST-391, "RSWF Criticality Control List," and sign applicable box of RSWF Material Acceptance Checksheet.

Idaho National Laboratory

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 12 of 25 |

- 3.1.4 RSWF Criticality Safety Officer (CSO): Approve proposed storage by signing applicable box of RSWF Material Acceptance Checksheet.
- 3.1.5 Safeguards Material Representative (if necessary): Verify accountable material to be stored meets the requirements of the RSWF Nuclear Material Control Plan and sign applicable box of RSWF Material Acceptance Checksheet.
- 3.1.6 TSD Staff Specialist: Complete Section 2 of RSWF Material Acceptance Checksheet.
- 3.1.7 TSD Facilities Manager: Review the RSWF Waste Acceptance Checksheet for completeness and authorize transfer of the material to RSWF for storage by completing Section 3 of RSWF Material Acceptance Checksheet.
- 3.1.8 OPS: Coordinate and schedule storage activities with the originator, Quality Assurance, Material Services-Handling, an HPT, the Machine Shop, and Security.
- 3.1.9 OPS: Verify the Radiological Work Permit (RWP) is active for this activity.
- 3.1.10 OPS: Attach a copy of a completed Form 429.01, "Idaho National Laboratory — Weld Data Sheet," to the working copy of this procedure.
- 3.1.11 MS: Prior to use, inspect all rigging tackle to be used to ensure it is free from defects and is within the periodicity for required inspection per LWP-6500, "Hoisting and Rigging at the INL."

3.2 Special Tools and Equipment; Parts and Supplies

- 3.2.1 Material Services-Handling: Ensure the following are available:
- Mobile crane
 - Forklift (25 ton minimum)
 - Long-handled tool (to direct and secure retrieval cable)
 - Positioning device
 - Lifting tackle to attach to the retrieval cable
 - Magnet

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 13 of 25 |

- 4-ft × 1-in. nylon sling with a working load limit (WLL) of at least 5,600 lb
- 5/8-in. shackle with a WLL of at least 5,600 lb
- Ladder for 14-cask (If using a 14 Cask)
- 5/16-in. cable (for 5-cans) or 1/2-in. cable (for 14-cans)
- Portable shielding (stored at RSWF).

3.3 Field Preparations

TSR-407, AC 5.407.4

- 3.3.1 Verify that at least one QUALIFIED operator or Shift Supervisor is present.
- 3.3.2 OPS: Inspect the row where the retrieval will occur for obstacles (e.g., liners, lift fixtures and low areas that might interfere with the movement of the 25 ton forklift.

NOTE: *The purpose of the test drive is to ensure that the ground is stable, there are no obstructions in the transfer path, and the forklift and cask will have unhindered progress to the liner.*

- 3.3.3 If necessary, perform a test drive by driving the forklift (loaded with an empty cask adapter) over the transfer path.
- 3.3.4 As necessary, stabilize the transfer path and/or remove obstructions from the transfer path so the forklift can make unhindered progress.
- 3.3.5 Stage the appropriate equipment (mobile crane, applicable tackle positioning device, and shield plug) as necessary to perform work activities directed by this procedure.

SAR-407 Safety Analysis Commitment

- 3.3.6 Keep heavy equipment 6 ft away from 48 in. and 60 in. liners.

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 14 of 25 |

3.3.7 Heavy equipment operations must be in accordance with LWP-14104, “Heavy Industrial Equipment.”

SAR-407 Safety Analysis Commitment

3.3.8 Heavy equipment that has not been evaluated for load effects on the storage liners at RSWF per ECAR-1827, “RSWF Equipment Loading Adjacent to Liners,” must be restricted to the maintained roadway that runs insider the perimeter fence of RSWF.

4. FACILITY CONDITIONS

TSR-407, AC 5.407.1

- _____ 4.1 Ensure no other container handling activities are in progress.
- | _____ 4.2 OPS: Verify the storage operation to be performed has been approved and approval is documented on an RSWF-Transfer Evaluation Checksheet (reference RSWF-OI-004, Appendix A) by the TSD Facilities Manager.

TSR-407, AC 5.407.2

| _____ 4.3 OPS: Verify the weather conditions (e.g., wind, snow, rain) are safe to perform the transfer. (Temperature must be >-40°F, sustained winds are not >25 mph, and no severe weather warnings are in effect.)

| _____ 4.4 OPS: Record the temperature:

| | |
|-------------------|--|
| Temperature (°F): | |
|-------------------|--|

| _____ 4.5 OPS: Verify the approved hot work permit for RSWF has not expired.

| _____ 4.6 OPS: If the proposed transfer involves mixed waste, perform the following:

4.6.1 Inspect cask integrity to ensure no visible signs of leaks.

4.6.2 Verify container/cask labeling is present (such as, hazardous waste label or barcode).

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 15 of 25 |

5. INSTRUCTIONS

NOTE 1: *The job supervisor may document step completion (in lieu of the person completing the step) during the performance of steps that must be performed sequentially without interruption.*

NOTE 2: *Ensure high visibility garments are worn by persons in proximity to operating equipment.*

NOTE 3: *Job supervisor may Pre-direct the performance of multiple steps of this procedure.*

NOTE 4: *Movement and staging of heavy equipment may be performed as per job supervisor direction, in any order.*

_____ 5.1 OPS: Examine the designated storage liner to ensure there is no water present. (A liner that contains water must not be used.) If water is present, select another liner that is dry.

_____ 5.2 OPS: Record the listed information in the following data table:

| | |
|-------------------|--|
| Date of storage: | |
| Storage No.: | |
| Container ID No.: | |
| Liner No.: | |

_____ 5.3 OPS: Verify cathodic protection system is operational, as indicated by the rectifier lights illuminating.

5.4 Test fit the shield plug in the liner as follows:

_____ 5.4.1 OPS: Obtain a shield plug to fit the storage liner being used. Verify the shield plug is dry. If the shield plug is wet and cannot be dried, obtain a new shield plug that is dry.

_____ 5.4.2 MS: Using the crane, place the shield plug in the storage liner. If the shield plug fits, remove the plug and place it near the storage liner.

_____ 5.4.3 OPS: If the shield plug will not fit, obtain a new shield plug to fit the storage liner.

Idaho National Laboratory

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 16 of 25 |

NOTE: *Independent Verification (IV) is required for the item obtained in Step 5.4.4.*

_____ 5.4.4 OPS: Using a magnet, verify the closure plate portion of the shield plug is carbon steel (reference Dwg. W7710-0291-ED).

| | | | |
|---|--|--------------|--|
| It has been verified that the shield plug is the correct size and material. | | | |
| Signature: | | Date: | |
| IV Signature/S Number: | | Date: | |

_____ 5.5 MS: Place the positioning device on the liner.

TSR-407, AC 5.407.2

_____ 5.6 MS: Do not drive the forklift with the loaded cask at a speed greater than 10 mph, and keep the cask as low to the ground as practical and never higher than 6 ft from the impact surface, when inside the RSWF.

TSR-407, AC 5.407.3

_____ 5.7 MS: Lower the cask on the positioning device, ensuring cask is fully seated on the positioning device.

TSR-407, LCO/SAC 3.407.2

_____ 5.8 OPS/HPT: Install temporary shielding around the positioning device on the side facing the crane and operator, or establish other mitigative measures to maintain the direct radiation exposure rate below 5 R/hr at the location of the closest facility worker(s).

_____ 5.9 HPT: Establish a Radiological Buffer Area.

_____ 5.10 HPT: Monitor radiation exposure in the vicinity of the closest facility worker(s) continuously.

_____ 5.11 MS/OPS: Verify the hand rail is installed on the cask adapter to allow personnel to access the top of the cask.

5.11.1 MS/OPS: Access the top of the cask.

5.11.2 MS/OPS: Ensure safety cables are attached across the hand rail opening.

5.12 MS: Position the crane as required for the storage activity.

_____ 5.13 MS/OPS: Remove the top door retaining bolts, then open the top shield door (if using a 5-cask) or remove the top plate (if using a 14-cask).

Idaho National Laboratory

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 17 of 25 |

_____ 5.14 HPT: Perform a verification radiological survey of the top plate (if removed) and the top of the container.

_____ 5.15 OPS: Visually verify the container identification number and record it in the following data table:

| | |
|-------------------|--|
| Container ID No.: | |
|-------------------|--|

NOTE: *The crane boom must be extended (depending on the weight of the payload) to reduce radiation exposure to the crane operator.*

_____ 5.16 OPS: Attach the crane hook to the retrieval cable.

WARNING

To prevent excessive radiation from the top of the open waste cask, the waste can must not be raised too far above the bottom shield door.

TSR-407, LCO/SAC 3.407.1

_____ 5.17 MS: Using the crane, raise the container slightly off the bottom shield door, ensuring container is not lifted beyond the top of the cask.

TSR-407, LCO/SAC 3.407.1

_____ 5.18 IF the container is lifted beyond the top of the shielded transfer cask during liner loading or unloading
THEN immediately return the container to a position within the shielded transfer cask.

_____ 5.19 IF the container is NOT immediately returned to a position within the shielded transfer cask,
THEN immediately establish and maintain a safe distance relative to the unshielded container.

| | | |
|---------------------------|-----------------|-------------|
| STORAGE OPERATIONS | Identifier: | RSWF-OI-001 |
| | Revision: | 14 |
| | Effective Date: | 06/02/14 |

CAUTION

Use caution when rolling the shield door open on the HFEF 14-Cask as the bottom door does not contain physical stops to prevent the door from coming completely out. For normal operations, only roll the door out to the “MAX OPEN” line painted on the door.

- _____ 5.20 OPS/MS: Remove the bottom door retaining bolts and open the bottom shield door to the MAX OPEN line painted on the door.
- 5.21 HPT: Perform verification radiological surveys of the bottom door when opened.
- _____ 5.22 HPT/SS: Have personnel not necessary for storage operations move to a safe and reasonable distance from the open liner while the waste can storage operation is in process.
- _____ 5.23 MS: Slowly lower the container to the bottom of the storage liner.
- _____ 5.24 MS: Raise the cask high enough to permit using a long-handled tool to secure the retrieval cable so it does not drop into the storage liner.
- _____ 5.25 MS: Disconnect the retrieval cable from the crane hook and allow it to drop through the cask.
- _____ 5.26 IF the 5-cask is being used,
THEN close the top and bottom shield doors,
AND install the retaining bolts (as required).
- 5.27 IF the 14-Cask is being used,
THEN perform the following:
 - _____ 5.27.1 Close the bottom shield door and install the retaining bolts.
 - _____ 5.27.2 Replace the top plate as directed by the HPT and/or SS.
- _____ 5.28 MS: Move the forklift so the cask is no longer over the storage liner.
- _____ 5.29 HPT: Perform a radiological survey of the retrieval cable.
- _____ 5.30 MS: Secure the retrieval cable as the positioning device is being removed so it does not drop into the storage liner.
- _____ 5.31 MS: Using the crane, raise the positioning device high enough to permit using a long-handled tool to secure the retrieval cable so it does not drop into the storage liner.

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 19 of 25 |

- _____ 5.32 OPS/MS: With support of the HPT, remove any temporary shielding (in installed); remove the positioning device.
- _____ 5.33 HPT: Perform a radiation survey at 1 ft over the open storage liner; record results and document step completion on the Radioactive Scrap and Waste Storage/Disposal Request and Authorization Form (FRM-798).
- _____ 5.34 MS: Using the crane, lift the shield plug.
- _____ 5.35 SS: Verify the shield plug is dry.
- _____ 5.36 MS: IF installing a 16-in. shield plug, THEN connect the cable to the bottom of the shield plug, AND GO TO Step 5.38.
- _____ 5.37 MS: IF installing a 26-in. shield plug, THEN coil the retrieval cable, AND place the cable in the liner.
- _____ 5.38 MS: Install the shield plug in the liner.

NOTE 1: *If the cask will be used for a retrieval (per RSWF-OI-002) following completion of storage operations it may remain at RSWF; otherwise it will be returned to the MFC Property Protection Area (PPA).*

NOTE 2: *Independent Verification (IV), required for the item obtained in Step 5.39, must be performed by the Visual Weld Inspector.*

- _____ 5.39 Welder: Obtain the required welding filler material and verify it is the correct material for welding the shield plug to the liner. Record the following data for the welding filler material.

| | | | |
|-------|--|------------|--|
| Type: | | QA Number: | |
|-------|--|------------|--|

| | | | |
|--|--|--------------|--|
| It has been verified that the welding filler material is the correct material. | | | |
| Signature: | | Date: | |
| IV Signature/S Number: | | Date: | |

- _____ 5.40 Visual Weld Inspector: Verify that the welder’s qualifications are current.
- _____ 5.41 Welder: Weld the shield plug in place in accordance with the INL Welding Manual, Section C 3.0 and Appendix A, Figure 1.
- _____ 5.42 Welder: Remove the support tabs as required during the weld.

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 20 of 25 |

_____ 5.43 HPT: Perform a radiation survey at 1 ft over the welded shield plug; record results and document step completion on FRM-798.

NOTE: *Steps 5.44 through 5.46 may be performed in any order.*

_____ 5.44 Visual Weld Inspector: Perform a visual inspection of the plug-to-liner final weld pass for no cracks, through fusion and undersized weld. Initial this step if the visual inspection meets the applicable inspection requirements cited in this step.

_____ 5.45 SS: Perform a posttransfer facility walkdown to ensure the integrity of the liners and cathodic protection system. Document facility walkdown and results in the TSD Facilities SS logbook.

| | |
|---|--------------|
| A posttransfer facility walkdown to ensure the integrity of the liners and cathodic protection system has been completed and documented in the TSD Facilities SS logbook. | |
| TSD Shift Supervisor: | Date: |

_____ 5.46 SS: Perform the following:

_____ 5.46.1 Document completion of the storage operation on FRM-798.

_____ 5.46.2 IF the transfer of accountable material was involved, THEN provide copies of the completed FRM-798 to the Safeguards Material Representative.

_____ 5.46.3 File the completed FRM-798 in the container storage data package.

6. POST-PERFORMANCE ACTIVITIES

6.1 SS: Contact Waste Generator Services (WGS) for disposition of any waste generated.

6.2 Staff Specialist: Update RSWF inventory database and IWTS (for waste only).

7. ABNORMAL OPERATIONS

TSR-407, LCO/SAC 3.407.1

7.1 The container shall not be lifted beyond the top of the shielded transfer cask during liner loading or unloading.

Idaho National Laboratory

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 21 of 25 |

- 7.1.1 IF the container is lifted beyond the top of the shielded transfer cask during liner loading or unloading
THEN immediately return the container to a position within the shielded transfer cask.
- 7.1.2 IF the container is NOT immediately returned to a position within the shielded transfer cask,
THEN immediately establish and maintain a safe distance relative to the unshielded container.

TSR-407, LCO/SAC Supplemental Radiological Control**7.2 High Radiation While Handling Containers**

- 7.2.1 IF dose rate exceeds 5 R/hr at the location of the closest facility worker,
THEN immediately place the container in a safe position by returning it to the shielded cask/storage device.
- 7.2.2 IF the container CANNOT be safely placed back into the shielded cask/storage device,
THEN immediately suspend container handling operations and immediately establish and maintain a safe distance relative to the container.
- 7.2.3 IF RWP Limits are exceeded,
THEN place container in a safe condition.

8. RECORDS

Executed copies of:

RSWF-OI-001, "Storage Operations"

429.01, "Idaho National Laboratory — Weld Data Sheet"

442.35, "Designated Hot Work Permit"

FRM-798, "Radioactive Scrap and Waste Storage/Disposal Request and Authorization Form"

NOTE: [LWP-1202, "Records Management,"](#) the [INL Records Schedule Matrix](#), and associated [record types list\(s\)](#) provide current information on the retention, quality assurance, and/or destruction moratorium requirements for these records. Contact a [Records Coordinator](#) for assistance if needed.

Idaho National Laboratory

| | | | |
|---------------------------|-----------------|-------------|----------------|
| STORAGE OPERATIONS | Identifier: | RSWF-OI-001 | |
| | Revision: | 14 | |
| | Effective Date: | 06/02/14 | Page: 22 of 25 |

9. REFERENCES

DOE Standard 1090, "Hoisting and Rigging"

Drawings:

W7710-0291-ED, "16 in. O.D. × 12 ft.-4 in. Storage Liner"

W7710-0308-ED, "16 in O.D. × 10 ft-0 in. Storage Liner"

Forms:

429.01, "Idaho National Laboratory — Weld Data Sheet"

442.35, "Designated Hot Work Permit"

FRM-798, "Radioactive Scrap and Waste Storage/Disposal Request and Authorization Form"

ECAR-1827, "RSWF Equipment Loading Adjacent to Liners"

INL Welding Manual

LRD-14303, "Handling and Use of Compressed Gases"

LRD-14406, "Welding, Grinding, and Other Hot Work"

LST-337, "Approved Container/Payload List for Inter-Facility Transfer Operations at MFC"

LST-391, "RSWF Criticality Control List"

LWP-6500, "Hoisting and Rigging at the INL"

LWP-14104, "Heavy Industrial Equipment"

LWP-16108, "Response to Sever Weather Conditions"

PER-116, "HWMA RCRA Partial Permit Materials and Fuels Complex"

SAR-407, "Safety Analysis Report for the Radioactive Scrap and Waste Facility (MFC-771)"

RSWF-OI-002, "Retrieval of Material from 16-in. and 26-in. Liners"

RSWF-OI-003, "Material Acceptance for Storage"

RSWF-OI-004, "Administrative Requirements/Process for Material Transfers"

RSWF-OI-005, "Nuclear Material Control Plan"

Idaho National Laboratory

| | |
|---------------------------|--|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 |
| | Revision: 14 |
| | Effective Date: 06/02/14 Page: 23 of 25 |

SD-38.1.2, "Treatment, Storage, and Disposal Facilities (TSDF) Hostile Environment Plan"

TPR-13442, "Visual Examination"

TSM-OI-003, "Transfer of Hazardous Material in Non-DOT-Certified Packaging Between MFC Nuclear Facilities"

TSR-407, "Technical Safety Requirements for the Radioactive Scrap and Waste Facility (MFC-771)"

10. APPENDIXES

Appendix A, Figure

Idaho National Laboratory

| | |
|---------------------------|---|
| STORAGE OPERATIONS | Identifier: RSWF-OI-001 Revision: 14 Effective Date: 06/02/14 Page: 24 of 25 |
|---------------------------|---|

INTENTIONALLY BLANK

| | | |
|---------------------------|-----------------|-------------|
| STORAGE OPERATIONS | Identifier: | RSWF-OI-001 |
| | Revision: | 14 |
| | Effective Date: | 06/02/14 |

Appendix A

Figure

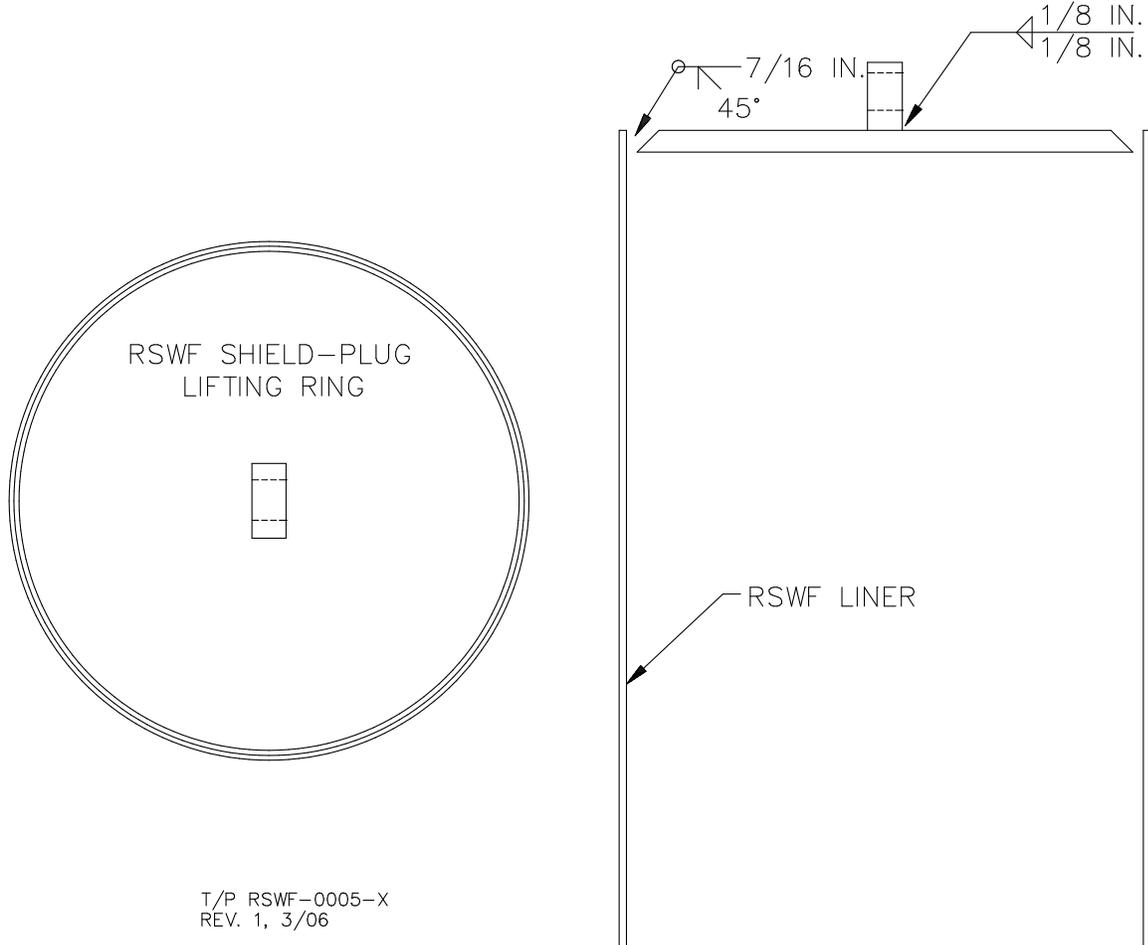


Figure 1. Plug-to-liner weld.