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Level 2 Technical Procedure

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1.0 PURPOSE

- 1.1** This procedure has been developed to implement applicable requirements for spill cleanup, overpacking, transferring, and packaging solid and liquid wastes from the following:
- 40 CFR 761.125, *Requirements for Polychlorinated Biphenyl (PCB) Spill Cleanup*
 - DOE/OR/11-3037/V1&D0, *RCRA Part B Permit Renewal Application, Vol. 1, Text, 02/015/00, and corresponding HW Facility Installation & Operation Permit Renewal, "General Permit Conditions"*
 - NCSE-SM-ERWM-004, *Use of Drum Vacuums & Transfer Pumps in Fissile Areas*
 - NCSE-SM-ERWM-026, *Repackaging of Fissile Containers*
- 1.2** This document implements applicable regulatory requirements. They are listed in Appendix A, *Regulatory Requirements Flow Down*.

FBP-PR-FY20-0063

2.0 SCOPE AND APPLICABILITY

- 2.1** This Level 2 procedure applies to personnel performing work for Fluor-BWXT Portsmouth LCC (FBP).
- 2.2** This procedure applies to all types of waste, including Resource Conservation and Recovery Act (RCRA) hazardous waste, waste contaminated with Polychlorinated Biphenyls (PCBs), Toxic Substances Control Act (TSCA) waste, Comprehensive Environmental Response and Liability Act (CERCLA) waste, and radioactive waste.
- 2.3** Tasks assigned to organizations or individuals by this procedure may be performed by their designees.
- 2.4** Implementation of this procedure is in accordance with the procedure scope of the Category 2 Facilities Technical Safety Requirements (TSRs).
- 2.5** Steps which flow down the requirements of NCSE-SM-ERWM-004, *Use of Drum Vacuums & Transfer Pumps in Fissile Areas*, and NCSE-SM-ERWM-026, *Repackaging of Fissile Containers*, only apply in facilities where these documents have been implemented.

3.0 GENERAL INFORMATION

Management of spill and releases occurring within the scope of the Process Building deactivation (Remedial Design/ Remedial Action) RDRA Work Plan (facilities X-330, X333, X-111A, X-111B, X-232C1, X-232C2, X-232C3, X-232C4, X-232C5) must be evaluated.

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4.0 USE REFERENCES

- A.** FBP-BS-PRO-00062, *Records Management Process*
- B.** FBP-DD-PRO-00136, *Hoisting and Rigging Procedure*
- C.** FBP-MC-PL-00002, *Nuclear Materials Control and Accountability Plan for Facilities Managed by Fluor-BWXT Portsmouth LLC*
- D.** FBP-MC-PRO-00067, *Nuclear Material Container Transfers*
- E.** FBP-NO-PRO-00077, *Field Decontamination*
- F.** FBP-NO-PRO-00100, *Nuclear Criticality Safety (NCS) Requirements for Container and Component Handling and Storage*
- G.** FBP-NO-PRO-00102, *Mopping Contaminated Areas (Contamination Control Zones, Contamination Areas, and High Contamination Areas)*
- H.** FBP-OS-PRO-00057, *Powered Industrial Trucks*
- I.** FBP-WM-PRO-00017, *Waste Storage in Category 2 Facilities*
- J.** FBP-WM-PRO-00036, *Radiologically Contaminated Materials and Equipment*
- K.** FBP-WM-PRO-00039, *Waste Container Operations*
- L.** FBP-WM-PRO-00046, *Waste/Recyclables Tracking*
- M.** FBP-WM-PRO-00061, *Material Handling*
- N.** FBP-WM-PRO-00090, *Waste Generation*
- O.** FBP-WM-PRO-00164, *Batching Contaminated Solids*
- P.** FBP-WM-PRO-00175, *Contaminated Liquids Sampling and Batching*
- Q.** FBP-WM-PRO-00262, *Managing Empty Containers*
- R.** FBP-WM-PRO-00264, *Waste Disposition*
- S.** FBP-WPC-PDD-00001, *Integrated Work Control Program Description Piketon, Ohio*

5.0 PRECAUTIONS AND LIMITATIONS

5.1 Special Hazards and Controls

5.1.1 Hazards Associated with all Tasks

- A.** Assured Clear Distance

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- Maintain situational awareness at all times.
- Never position yourself in a "line of fire" scenario.
- Be aware of the potential for flying debris when performing tasks involving impacting surfaces with tools or when abrupt surface to surface material contact can occur.
- If uncontained or unsecured material is being moved outside the radius of the potential movement if it shifts or moves unexpectedly.

B. Improper Operation of Forklift/Tugger/Scissor Lift, etc.

- Operators must be trained and qualified to operate the specific piece of equipment.
- Perform a 360 walk-around before movement.
- Ensure all loads are within the capacity of the equipment.
- Spotters shall accompany the movement of any Powered Industrial Truck.
- Spotter shall wear high visibility vest/clothing that are labeled as meeting American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) 107, American National Standard for High Visibility Safety Apparel and Head wear Devices, Class 2 or 3 requirements.
- Coordinate the material movement with the spotter.

NOTE

Drums may be palletized and banded/ strapped to the pallet. Un-banded drums shall be secured (i.e., strapped) to the mast of the forklift. Boxes shall be secured to the mast of the forklift unless approved fork pockets are used. Small drums and other loose items may be palletized and shrink wrapped in lieu of banding/strapping. Sound horn when entering and exiting facilities, passing through doorways or corridors, etc.

- Operate the forklift according to FBP-OS-PRO-00057, *Powered Industrial Trucks*, prior to movement, verify the load is secure.
- Limit speed to a brisk walk.

C. Insufficient Lighting

- Lighting should be within the following guidelines:
 - Foot-Candles: 5; Area: General construction area

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- Foot-Candles: 3; Area: General construction areas, concrete placement, excavation, waste areas, access ways, active storage areas loading platforms, refueling and field maintenance areas
- Foot-Candles: 5; Area: Indoors, warehouses, corridors, hallways and exit-ways
- If unsure, contact Industrial Hygiene (IH) for evaluation.
- Use portable lighting when necessary.

D. Lack of Communication

- Ensure the work group has a working radio and/or company issued cell phone. Identify the nearest working land line if neither the radio nor cell phone can connect.

E. Muscle Strains and Sprains

- Personnel shall report any medically imposed lifting restrictions to project supervision.
- Use mechanical means to lift/move items as required.
- Bend at the knees and keep the back straight as possible when picking up or setting down objects.
- Limit single, unassisted manual lifts to items that weigh 50 pounds or $\frac{1}{3}$ body weight, whichever is less.
- If materials greater than 50 pounds are to be lifted manually, utilize multiple personnel such that no individual is lifting greater than 50 pounds or $\frac{1}{3}$ of their body weight, whichever is less.

F. Nuclear Criticality Safety (NCS)

- Follow all NCS hazard controls per Nuclear Criticality Safety Evaluations/Approvals (NCSEs or NCSAs).

G. Overhead Hazard

- Use a spotter if moving high profile equipment within a structure or into out of a structure or lowering material from an elevated position with a forklift or telehandler.

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H. Radiological Contamination

- Read and sign applicable building General Radiological Work Permit (RWP). Be briefed to and follow Job Specific RWP's specifying controls and Personal Protective Equipment (PPE) for entry into radiological areas if required.

I. Slips Trips and Falls

- Be alert for uneven surfaces, wet, slick walkways when performing pre work walk downs and inspections.
- Maintain the work area clean and clear of clutter to ensure no slips, trips, and fall hazards exist.
- Watch for diking around the RCRA areas that could cause a trip hazard.

J. Temperature Extremes

- Contact Safety and/or IH for temperature, humidity, Wet Bulb Globe Temperature (WBGT), etc. Stay hydrated when "heat" extremes are prevalent. Follow the work / rest regimen or other approved methods.
- Physiological Monitoring may be used on a volunteer basis.

K. Various Agents or Materials (i.e., Silica, HF, Asbestos Containing Materials, PCB's, Beryllium, Lead, Chromium, Mercury, PCB, Eye or Skin Irritants, Hazardous Chemicals)

- Verify that the training and qualification of the workers is consistent with the hazard encountered.
- If a permanent eyewash and/or safety shower is not located within the immediate work area a portable safety eyewash/shower shall be used and be located within the immediate work area with an unobstructed pathway.
- In case of contact with chemical contaminants, begin flushing contaminated eyes or skin with eyewash solution. Ensure the Fire Department is notified immediately and continue flushing until medical assistance arrives.
- Silica:
 - Ensure workers have silica awareness training.
 - Use wet methods to keep dust to a minimum.

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- Asbestos containing Materials- Class IV asbestos work:
 - Use vacuum cleaners equipped with HEPA filters to collect all debris and dust containing Asbestos Containing Material (ACM) when feasible.
 - Use wet methods to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, except where it can be demonstrated that the use of wet methods is infeasible.
 - Promptly clean-up and dispose of waste and debris contaminated with asbestos in leak-tight containers.
 - If cleaning up debris and waste in a Regulated Area where respiratory protection is required, then wear properly selected and fitted respirators.
- PCB's:
 - Nitrile Gloves shall be worn during work evolutions that have the potential to have contact with residual oils.
 - Workers shall have completed on-line PCB training.
- Beryllium:
 - Contact an Occupational Safety and Health (OS&H) Professional for projects and tasks that will involve Beryllium-Contaminated Legacy Equipment/Systems or structures in areas where dust levels may be disturbed, or to remove previously stored items within demarcated boundaries.
 - Ensure that items found with surface contamination above 0.2 g/100 cm² are decontaminated to lower levels, or disposed of, according to instructions presented in the Beryllium Program for release criteria and waste disposal.
- Lead:
 - Personnel monitoring should be performed for employees who perform tasks that involve working with lead or its components.
 - Ensure lead awareness training is completed by workers potentially coming in contact with lead.
 - Define work scope area and post per IH recommendations.
 - DO NOT eat, drink, smoke, or apply cosmetics when working with lead.

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- Chromium:
 - IH will conduct heavy metals monitoring when data shows Chromium may be present.
 - PPE requirements are gloves, and safety glasses with side shields at a minimum.
 - Respiratory protection may be prescribed based on work activity.
- Mercury:
 - PPE requirements for Mercury are as follows: Eyewear, Protective, with Rigid Side Shields-Nitrile Gloves.
 - Contact IH for monitoring suspected mercury release, do not move from area until a thorough check for mercury contamination is performed.
 - Report any release to appropriate personnel (i.e., Facility Management and Environment, Safety, and Health [ES&H] professional).
 - Ensure all personnel are familiar with the proper mercury handling procedures and emergency procedures, including transfer of mercury to appropriate containers.
- Eye or skin Irritants:
 - Appropriate eye protection shall be worn and appropriate PPE requirements will be given by IH and Radiation Protection (RP), as applicable.
- Hazardous chemicals:
 - Apply the applicable hazard controls from the General JHA-13-1647, *General Work JHA* section on *Work involving the Use of Chemicals*.
- Hydrogen Fluoride (HF):
 - HF air monitoring will be performed during all work involving HF and requires workers to exit the area when Breathing Zone (BZ) HF levels reach 20 ppm.
 - IH along with RP will proscribe the appropriate respiratory protection and clothing. Based on the encountered or expected BZ levels.

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- When a VISIBLE indication of HF is present, employees will be directed, by IH or RP, to an area beyond the visible indication (i.e., smoke) of HF.
- When dealing with HF, a full-face air purifying respirator with GME P100 cartridge is adequate protection for respiratory and eye protection up to a breathing zone level of 20 ppm.

NOTE

HF monitoring is performed and requires workers to exit the area when HF levels reach 20 ppm).

- Anti-C coveralls and disposable gloves (i.e., nitrile) provide adequate protection against incidental exposures to gaseous HF
- HF air monitoring will be performed during all work involving HF.
- IH along with RP will proscribe the appropriate respiratory protection and clothing.

5.1.2 Transferring waste – Performing Spill Cleanup and Repackaging and Transferring of Waste.

A. Hand Tools/Powered Hand Tools

- Inspect tools and extension cords prior to use and remove any defective tools or cords from service and tag them “Out of Service” with an ORANGE Defective Equipment Tag.
- When using vibrating tool use team practices; take breaks when needed; return your hands and arms to the neutral position periodically; and avoid working with your hands overhead for extended periods of time.
- Wear protective eye wear (safety glasses with side shields, or in combination with face shield, as required).
- Be aware of potential finger/hand pinch points.
- Utilize tools/equipment for their intended purpose.
- Use only self-retracting safety blade utility knives, and cut away from the body (personal, or other non- OS&H-approved, knives are not to be used).

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NOTE

There are times when the use of gloves impedes the work (handling small nuts and bolts, intricate pieces, etc.) and is not practical. Personnel need to assess the job and determine conditions under which the work can be completed safely.

- When manipulating hand tools, handling sharp-edged material, or when hands are exposed to potential pinch points or laceration cut resistant gloves are required with a cut resistance level 2 or higher and when a puncture hazard is present, puncture resistant gloves level 3 or higher.
- Contact project Industrial Hygiene (IH) representative to determine the need for, and to conduct monitoring for carbon monoxide when using fuel-powered equipment.
- Use only double-insulated or 3-wire grounded power tools.
- Utilize extension cords that are rated for the equipment being used.
- Extension cords shall not be located in standing water, placed so that they create a slip hazard, ran over by vehicles or equipment, or can otherwise be damaged.
- Stanchions or other means to keep extension cords out of standing water shall be utilized “Daisy Chaining” of extension cords is not permitted.
- Ground Fault Circuit Interrupter (GFCI) protection is mandatory for construction and outdoor areas. GFCIs should be tested daily before use.
- GFCIs shall be placed at the electrical power source (e.g., between an electrical outlet and extension cord). Unplug power tools before servicing.
- No field repairs of power/extension cords are permitted; electrical repairs shall be made only by a qualified electrician.
- Utilize engineering controls where it is feasible to control noise hazards.

B. Improper Waste Disposal

- Ensure that waste generated in CERCLA designated facilities is handled, processed or stored in accordance with applicable requirements. If unsure contact Waste Management or Environmental Protection for direction.

C. Opening Containers – Lids and bungs may suddenly release from pressurized containers and strike personnel causing injury

- Inspect containers for damage or leaks before handling. Stop work and do not handle bulging or swollen drums. Contact Supervision immediately.

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- Install a drum lid restraining device (drum web) over the top of suspect drums prior to opening them.
- Stand to the side of a drum or container and slowly loosen the bung with a bung wrench while watching to see if the drum is pressurized or if chemical material is released when the bung is loosened.
- Do not pressurize containers when transferring liquids- use other (safer) methods of transferring liquids.

D. Spill Response – Controlling and Evaluating a Spill or Release of chemicals or other hazardous materials

- Barricade the spill area to keep out unauthorized personnel.
- Use PPE including respiratory protection as specified by IH and RP after evaluation of the specific hazards present.
- Warn others in the area. Evacuate personnel to a safe distance.
- If chemical or radioactive contamination of personnel or property occurs, place the area in a safe configuration and contact the industrial hygiene and radiological control group for assistance.
- An eyewash station shall be available in the immediate work area during work operations.
- Flush contaminated eyes or skin with water for at least 15 minutes in case of contact. Call immediately for medical assistance.
- If the spill involves a fire, explosion, gaseous release, or release of hazardous waste to the environment, then also notify the ES&H Officer, project supervision, and contact the Plant Shift Superintendent (PSS) for potential implementation of the RCRA Hazardous Waste Contingency Plan. To contact the PSS, either:
 - Call the PSS over channel 2 on a two-way radio.
 - Activate a fire alarm box.
 - Call the PSS over channel 3 on an FBP radio.
 - Dial 911 on any plant phone routed through the PORTS switchboard.
 - Dial 740.897.2444 on any off-site phone, cell phone, or plant phone with a direct line off site.
 - Send a messenger.

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- Obtain, read, and understand the Safety Data Sheet (SDS) and be aware of the hazards listed.
- E. Handling Flammable or Combustible Chemicals – Fire, Explosion, Burns**
- Eliminate all ignition sources (sparks, smoking, flames, hot surfaces).
 - Bond and ground metal containers when transferring flammable and combustible liquids.
 - Use an inherently safe and spark-resistant pump for transferring liquids.
 - Avoid staging other chemical containers in the immediate area where a chemical transfer is taking place to avoid the spread of fire or chemical reaction to other containers.
 - Contact the Safety department for more information as necessary.
 - Do not store combustible or flammable liquids with incompatible materials.
- F. Handling Corrosives – Acids and Bases – Skin, Eye and Respiratory Burns**
- Use PPE including respiratory protection as specified by IH and RP.
 - Do not store acids and bases beside each other or with other incompatible materials.
 - Use an approved corrosion-resistant pump for transferring liquids.
- G. Chemical Reaction – Mixing of Incompatible Chemicals during Transfer Operations (Fire, Explosion, Skin Burns)**
- Consult the Waste Disposition Specialist (WDS), and other expert sources, as necessary, to determine chemical incompatibilities and precautions before transferring waste.
 - Do not reuse empty containers – the residue may be hazardous and incompatible.
 - No more than one waste container should be processed at a time unless the process is designed for multiple container transfer.

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H. Chemical Splashes – Skin and Eye Contact – drips or splashes such as hoses and pumps or other transfer devices, are placed into or removed from chemical containers

- Maintain control of the ends of hoses as they are withdrawn from chemical containers to avoid uncontrolled motion and resulting drips and splashes. Wear safety glasses, a face shield, chemical resistant gloves and apron.
- Place hoses and pumps in approved, segregated containers to avoid spread of chemical contamination and incompatibility reactions.

5.1.3 Container Handling

A. Pinch Points

- Refer to procedure, FBP-WM-PRO-00039, *Waste Container Operations*, for guidance.

B. Cuts and Lacerations – sharp edges on containers

- Wear cut-resistant gloves with a cut resistance level of 2 or higher when handling containers.
- When over packing containers, place approved lifting device on container.
- Remove all hands from the lifting device.
- Guide drum into over pack. Do not place your hands between the drums.
- Watch your hand placement at all times.
- Set container into the overpack.
- Avoid pinch points and the area of operation when using tools.

5.1.4 Post-Work Housekeeping

- Slips, Trips, Falls, Unwanted Tools, Equipment, and Debris Left from Work Activities
 - General Area Housekeeping – debris, equipment and tools shall be placed in “safe storage” as soon as work activities conclude during work shift (i.e., breaks/lunch) and at end of shift.

5.2 Other Limitations

5.2.1 NCS Requirements – Personnel who suspect or determine that an applicable NCSE requirement has been violated shall:

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- A. STOP** all activities – **DO NOT MOVE CONTAINERS!**
- B.** Inform the appropriate Operations Manager and NCS Manager.
- C.** Establish a boundary – with an Anomalous Condition Reporting (ACR) posting – at least 15 feet from the affected area.
- D.** Once the boundary is established, **DO NOT** re-enter the affected area.
- E.** Provide details to NCS personnel.

5.2.2 Nuclear Materials Control and Accountability (NMC&A) Precautions

- A.** Movement of accountable nuclear materials into or within a designated Material Balance Area (MBA) must be coordinated with the NMC&A Organization and approved by the MBA Custodian; refer to FBP-MC-PL-00002, *Nuclear Materials Control and Accountability Plan for Facilities Managed by Fluor-BWXT Portsmouth LLC*.
- B.** NMC&A shall be notified prior to movement or transfer of accountable nuclear materials or activities that will change the characteristics of accountable nuclear materials (i.e., weight, volume, assay), or that create new accountable containers.
- C.** Portsmouth Materials Accounting System (PORTSMAS) updates shall be completed by the end of the shift for container movements or according to FBP-MC-PRO-00067, *Nuclear Material Container Transfers*.
- D.** If analyses are performed on material previously written off as waste, results shall be provided to NMC&A to determine if materials should be reconsidered “accountable”.
- E.** If materials are determined to be accountable, they must be moved to an approved MBA.
- F.** For spill cleanup or material transfer within an MBA, Nondestructive Assay (NDA) or chemical analysis results shall be provided to NMC&A.

6.0 PREREQUISITES

6.1 Planning and Coordination

Supervisor

- 6.1.1** Refer to FBP-WM-PRO-00039 and FBP-WM-PRO-00017, *Waste Storage in Category 2 Facilities*, for applicable requirements regarding the handling, moving, and labeling of containers.
- 6.1.2** Field work shall be planned and performed in accordance with FBP-WPC-PDD-00001, *Integrated Work Control Program Description*.

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- 6.1.3** Ensure equipment used for material handling has been inspected per FBP-WM-PRO-00061, *Material Handling*.
- 6.1.4** CERCLA waste spill cleanup shall be completed in accordance with this procedure and the requirements in FBP-WM-PRO-00330, *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Waste Storage and Staging Areas*.
- 6.1.5** Prior to performing work under sections of this procedure which contain flow down from either NCSE-SM-ERWM-004, *Use of Drum Vacuums & Transfer Pumps In Fissile Areas*, or NCSE-SM-ERWM-026, *Repackaging of Fissile Containers*, verify that the applicable NCSE has been implemented for the facility where the work is to be performed.

6.2 Field Preparations

Supervisor

- 6.2.1** Ensure the following requirements are implemented, as necessary, prior to starting the job:
- ²³⁵U information has been obtained for containers to be repackaged or transferred
 - Contents of container or spill including hazardous constituents
 - Chemical compatibility and packaging requirements
 - Waste Certifier is available for packaging
 - RP coverage requested for radioactive waste being repackaged or transferred
 - OS&H coverage in place, as needed
 - Spill control equipment/materials and emergency communication are available
- 6.2.2** Ensure containers for transferring/repackaging operations are Department of Transportation (DOT) compliant, and requirements of FBP-WM-PRO-00262, *Managing Empty Containers*, are met.
- 6.2.3** **IF** radioactive waste is being batched, **THEN** follow the requirements of FBP-WM-PRO-00164, *Batching Contaminated Solids*, or FBP-WM-PRO-00175, *Contaminated Liquids Sampling and Batching*, which may be supplemented by sections of this procedure.

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Spill Cleanup and Repackaging/Transferring Waste

Qualified Worker

NOTE

Because the vacuum receiving containers are larger than always safe geometry and the transfer pumps are used to pump from and into containers larger than always safe geometry, additional NCS limits and controls are required for these operations. Receiving containers are limited by the dimensional requirements of the applicable drum storage NCSEs.

- 6.2.4** Confirm by measurement all containers used to receive and store non-NCS-exempt fissile material have a minimum outer diameter (OD) as indicated in Table 1. The smallest container approved for use under procedure for exempt or non-exempt material is a nominal 5-gallon drum.

NCSE-PLANT108, 6.5.1

Table 1

| Nominal Container Size | Minimum OD |
|------------------------|-------------|
| 5-gallon (or larger) | 10 inches |
| 20-gallon (or larger) | 16 inches |
| 55-gallon (or larger) | 20.5 inches |

6.3 Approvals and Notifications

Qualified Worker

- 6.3.1** Empty containers and partial transfers require preparation of new Waste/Material Generation (WMG) forms (hereafter called “tracking forms”) and Change to Waste Tracking (CWT) Information forms per FBP-WM-PRO-00046, *Waste/Recyclables Tracking*.
- 6.3.2** Complete FBP-WM-PRO-00016-F03, *Packaging Log* (see Attachment B); submit form to database administrator within 3 business days.
- 6.3.3** Place a copy of FBP-WM-PRO-00016-F03 information in affected tracking packet(s).

Cognizant Manager

- 6.3.4** **IF** performing fissile material spill cleanup or material transfer using a drum vacuum or transfer pump, **THEN** complete, sign, and obtain Facility Manager/designee and NCS approval, as necessary, on FBP-WM-PRO-00016-F02, *NCSE-SM-ERWM-004 Verification Check Sheet*, prior to commencing cleanup or material transfer.

NCSE-SM-ERWM-004, #6.5.1

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7.0 TEST EQUIPMENT, TOOLS AND SUPPLIES

- 7.1** Equipment, tools, and supplies may be selected, as needed, to perform spill cleanup or repackaging/transferring operations. Other supplies may be obtained, as necessary.
- 7.2** Containers for overpacking or transferring
- 7.3** Electrical extension cord with GFCI
- 7.4** Hand Tools (various, non-sparking)
- 7.5** Transfer mechanism (pump/drum vacuum), Non-sparking, inherently safe, based upon operation use
- 7.6** Barricade, safety
- 7.7** Bonding and grounding cables and clamps
- 7.8** Emergency eyewash station, portable (as necessary)
- 7.9** Fire extinguisher
- 7.10** Spill kit, chemical, acid/base
- 7.11** Spill kit, chemical, solvent-based
- 7.12** Spill kit, mercury
- 7.13** Apron, (acid-resistant if handling acids) (Neoprene [preferred], Nitrile, Polyvinyl Chloride [PVC])
- 7.14** Eyewear, protective, with rigid side shields, meeting ANSI Z87.1 standard (latest revision)
- 7.15** Face shield meeting ANSI Z87.1 standard (latest revision)
- 7.16** Footwear, protective (reinforced toe boots/shoes)
- 7.17** Gloves, (acid-resistant if handling acids) (Neoprene [preferred], Nitrile, PVC)
- 7.18** Gloves, with a cut resistance level 2 or higher and when a puncture hazard is present, puncture resistant gloves level 3 or higher

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8.0 ACTIONS

8.1 NCS Boundaries

Supervisor

- 8.1.1** Document access, egress and movement of materials in/out of the NCS boundaries for each NCS posted area prior to performance of work. Established NCS boundaries may be moved as approved by the Supervisor.

Supervisor, NCS Personnel, Qualified Worker

- 8.1.2** IF NCS boundaries will be created, **THEN** Qualified Worker personnel perform activities to establish new areas at the direction of the Supervisor and/or NCS personnel. The NCS group will perform evaluations of the new NCS boundaries and provide notification to the Supervisor when approved. Once new boundaries are in effect, actions to move the boundaries for access, egress and movement of materials are per the direction of the Supervisor. Qualified Worker personnel will also perform maintenance, as necessary, on established NCS boundaries (i.e., rope and stanchion repair or replacement).

8.2 General Spill Cleanup of Non-Fissile Material

Qualified Worker

- 8.2.1** Contact the Supervisor and Facility Manager any time a spill condition is identified.
- 8.2.2** Contact the PSS whenever the spill involves a fire, explosion, gaseous release, or release of hazardous waste to the environment for potential implementation of the RCRA Hazardous Waste Contingency Plan.

Supervisor

- 8.2.3** Contact RP and Safety/IH, as soon as possible, whenever a spill condition is identified and determine appropriate hazard controls and PPE for spill cleanup.
- 8.2.4** Contact WDS and determine proper packaging for eventual disposition.
- 8.2.5** Notify Environmental Protection and ensure any special directions for remediation of the spill site are considered.

Qualified Worker

- 8.2.6** Don appropriate PPE as prescribed by RP and Safety/IH.
- 8.2.7** Clean up spill in accordance with direction provided by the WDS, RP, Safety/IH, and Environmental Protection.

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8.2.8 Close and label the container per the requirements of FBP-WM-PRO-00039 and complete associated paperwork in accordance with FBP-WM-PRO-00046.

8.2.9 Place the container in storage based upon the contents and WDS direction.

Supervisor

8.2.10 Notify PSS, Environmental Protection, and Facility Manager that the spill cleanup is completed.

8.3 Fissile Material Spill Cleanup

Qualified Worker

8.3.1 Contact Supervisor and Facility Manager any time a spill condition is identified.

8.3.2 Contact the PSS whenever the spill involves a fire, explosion, gaseous release, or release of hazardous waste to the environment for potential implementation of the RCRA Hazardous Waste Contingency Plan.

Supervisor

8.3.3 Contact RP and Safety/IH, as soon as possible, whenever a spill condition is identified.

8.3.4 Contact NCS Engineer whenever the spill involves favorable geometry (e.g., small diameter) containers.

Qualified Worker

8.3.5 ²³⁵U Concentration of Spilled Material is Known:

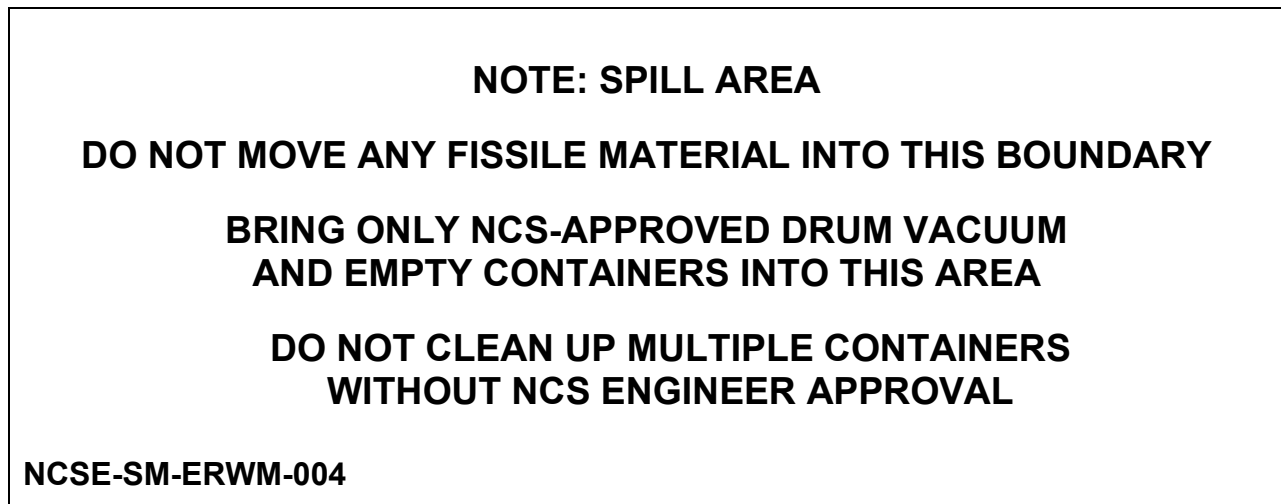
- A.** Set up a boundary (e.g., stanchions, rope) around all accessible sides of the spill area. The boundary should be located at least two feet from the edge of the spilled material.

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- B. Ensure a sign similar in wording to that shown in Figure 1, *Spill Area Sign Example*, is posted at each accessible side of the spill area when a spill is discovered.

NCSE-SM-ERWM-004, 6.6.2

Figure 1, Spill Area Sign – Example



- C. Allow **no** fissile material to be moved into the boundary.

NCSE-SM-ERWM-004, 6.5.4

- D. Ensure FBP-WM-PRO-00016-F02 is filled out and approved by the Facility Manager (and NCS Engineer if required) prior to spill cleanup.

NCSE-SM-ERWM-004, 6.5.1

- E. Maintain a minimum of 2 feet edge-to-edge spacing between the receiving drum exceeding 50 ppm ²³⁵U and any other container(s) of fissile material during movement into the spill boundary and during vacuuming of spilled material.

NCSE-SM-ERWM-004, 6.5.3

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- F. IF** multiple containers or other container types (such as small diameter containers or boxes) are involved in the spill, **THEN** obtain Facility Manager and NCS Engineer approval on the FBP-WM-PRO-00016-F02, and perform the following:

NOTE

Steps [1] and [2] below do not apply to small diameter containers.

*NCSE-SM-ERWM-004, 6.5.6.a Note
NCSE-SM-ERWM-004, 6.5.6.b Note*

- 1) **IF** the material in all of the containers involved in the spill is known to be ≤ 50 ppm ^{235}U , **THEN**:

- Handle the 55-gallon receiving drums as NCS exempt containers or store under an applicable NCSE.
- Handle the vacuum process and movement as exempt from NCS controls with no spacing requirements between the receiving drum and the spill material.

NCSE-SM-ERWM-004, 6.5.6.a

- 2) **IF** the material in all of the containers involved in the spill is known to be > 50 ppm and ≤ 500 ppm ^{235}U , **THEN**:

- Only one 55-gallon receiving drum shall be taken into the spill boundary at a time.
- The drum shall be spaced at least two feet edge-to-edge from the spill material and other fissile containers.

NCSE-SM-ERWM-004, 6.5.6.b

NOTE

For spill cleanup, the verification of tamper seals required by the batching process per NCSE-PLANT013 is met by verifying the physical boundary established in Step 8.3.5A.

Vacuum cleanup of a spill involving greater than a safe mass of uranium (i.e., not an approved safe batch under NCSE-PLANT013) is not permitted by this procedure.

NCSE-SM-ERWM-004, 6.5.6.c Notes

- 3) **IF** the material in at least one of the containers involved in the spill is >500 ppm ^{235}U , or if the concentration is unknown, or if small diameter containers are involved in the spill, **THEN** the batching requirements of FBP-WM-PRO-00164 or FBP-WM-PRO-00175, shall be followed, in addition to the requirements for drum vacuums in this procedure.

NCSE-SM-ERWM-004, 6.5.6.c

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G. Label the new container(s) and complete documentation as described in Subsection 8.11, *Labeling and Documentation*.

H. Disposition parent and receiving containers and drum vacuum used for spill cleanup in accordance with Subsection 8.12, *Disposition of Containers and Drum Vacuums/Transfer Pumps Used for Material Transfer or Spill Cleanup*.

8.3.6 ²³⁵U Concentration of Spilled Material is Not Known:

- Contact Chemical Operators to clean up spilled material in accordance with the requirements of FBP-NO-PRO-00077, *Field Decontamination*.

8.4 Mercury Spill Cleanup Immediate Actions

Qualified Worker

8.4.1 Contact Supervisor and Facility Manager any time a spill condition is identified and secure the area.

8.4.2 Establish a boundary around the spill to ensure chemical or radiological contamination is not spread as directed by supervision.

8.4.3 **IF** spill was in or near a radiologically contaminated area, **THEN** contact RP.

8.4.4 Request OS&H provide a pre-cleanup survey of the area to be cleaned, including the following:

- Mercury vapor airborne concentration
- Required PPE

8.4.5 Ensure OS&H monitoring is performed during spill clean-up operations.

8.4.6 Don required safety equipment in accordance with guidance from IH and RP.

8.4.7 **IF** cleaning up the spill using a portable mercury spill kit, **THEN** perform the following:

- Obtain portable mercury spill kit.
- Remove mercury droplets with Hg absorbent sponges.
- IF** Hg absorbent sponges are used, **THEN** place Hg saturated sponges in sealable plastic bag.
- IF** mercury is in hard-to-reach area(s), **THEN** spread Hg absorbent powder in area(s).
- Collect used Hg absorbent powder with brush.

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- F. Transfer collected mercury, Hg absorbent sponges, and Hg absorbent powder to approved container, and label containers as hazardous waste; WMG and handle per FBP-WM-PRO-00090, *Waste Generation*.

Supervisor

- G. Contact OS&H for post job survey.

Qualified Worker

- H. **IF** the area cleaned has no mercury contamination, **THEN** return area to normal use.
- I. **IF** mercury contamination is still found, **THEN** repeats Steps 8.4.7A through 8.4.7H, as applicable, or **go to** Subsection 8.5, *Mercury Spill Cleanup Supplemental Actions*.

8.5 Mercury Spill Cleanup Supplemental Actions

Qualified Worker

- 8.5.1** Use HGX (Mercury Decontaminant Powder) to further decontaminate, as follows:

- A. **IF** mopping in a Contaminated Control Zone (CCZ), Contamination Area (CA), or High Contamination Area (HCA), **THEN** observe the requirements of FBP-NO-PRO-00102, *Mopping Contaminated Areas (Contamination Control Zones, Contamination Areas, and High Contamination Areas)*
- B. Utilize wet method as follows:
 - 1) Add 1.5 pounds of HGX slowly to 5 gallons of water.
 - 2) Apply solution to area with sprayer, whitewash brush, or mop.
 - 3) Allow solution to stand 24 to 48 hours.
 - 4) Mop area and place solution in approved plastic lined containers.
- C. Utilize dry method as follows:
 - 1) Spread 8 ounces of HGX evenly over 100 square feet of treatment area.
 - 2) Brush or sweep HGX lightly into all cracks and crevices.
 - 3) Spray, swab, or sprinkle treated area with water.
 - 4) Mop area and place solution in approved plastic lined containers.

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- 8.5.2** IF radiological contamination was present in area of mercury spill, **THEN** contact RP to perform radiological survey.
- 8.5.3** After cleanup operations are complete, request OS&H perform survey to ensure complete removal of mercury.
- 8.5.4** IF survey indicates mercury contamination, **THEN** repeat wet or dry method, as directed by Supervisor.
- 8.5.5** IF survey indicates no mercury contamination, **THEN** return area to normal use.

8.6 Repackaging Fissile Material Preparation

Qualified Worker

- 8.6.1** Establish a process area with a boundary (e.g., stanchions, rope) separated a minimum 2 feet edge-to-edge from container staging areas and other uranium bearing containers.

NCSE-SM-ERWM-026, 6.5.3

- 8.6.2** Ensure a sign similar in wording to that shown in Appendix B is posted at each accessible side of the process area.

NCSE-SM-ERWM-026, 6.6.2

NOTE

Container staging areas are NCSE-specific (i.e., containers from different NCSEs cannot be combined in the same staging area) areas to store containers for more efficient processing. The containers placed in these areas are controlled the same as the storage areas from which the containers originated.

- 8.6.3** As necessary, establish container staging area(s) (i.e., NCSE-controlled storage areas) for the container(s) to be repackaged.

- 8.6.4** Handle and store non-NCS-exempt containers entering and exiting staging areas per the requirements of an approved NCSE.

NCSE-SM-ERWM-026, 6.5.1

- 8.6.5** Per the requirements of FBP-WM-PRO-00039, move containers to be repackaged to the process area one at a time.

NCSE-SM-ERWM-026, 6.5.11

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8.6.6 IF the container to be processed contains greater than the following ^{235}U safe mass:

| Enrichment (% ^{235}U) | ≤ 1 | ≤ 3 | ≤ 3.5 | ≤ 4 | ≤ 5 | ≤ 10 | ≤ 15 | ≤ 20 | ≤ 30 | ≤ 40 | ≤ 50 | ≤ 100 |
|-------------------------------------|-----------|----------|------------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| Non-Oily (g ^{235}U) | Unlimited | 1180 | 1000 | 900 | 800 | 600 | 520 | 480 | 440 | 410 | 390 | 350 |
| Oily (g ^{235}U) | Unlimited | 1050 | 670 | 670 | 670 | 430 | 350 | 350 | 280 | 280 | 280 | 240 |

NCSE-SM-ERWM-026, 6.5.4

THEN:

A. ONLY open container in an enclosure.

NCSE-SM-ERWM-026, 6.5.5

B. Keep container closed with lid secured, when unattended.

NCSE-SM-ERWM-026, 6.5.4

C. Do not add water or oil to containers.

NCSE-SM-ERWM-026, 6.5.7

8.6.7 Do not stack containers in the process area.

NCSE-SM-ERWM-026, 6.5.6

8.6.8 Overpacking

CAUTION

Overpacking of small diameter containers is not permitted under this procedure. This activity is controlled under the requirements of FBP-WM-PRO-00164.

Qualified Worker

- A.** Select an appropriate size overpack container.
- B.** Open overpack container.
- C.** Place an approved liner in the overpack container or use an approved pre-lined container.
- D.** IF overpacking a leaking container, **THEN** place a small amount of absorbent material in the overpack container per direction of the WDS.
- E.** IF container can be manually overpacked, **THEN go to** Step 8.6.8G; otherwise, proceed to Step 8.6.8F.

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- F.** Lift the container to be overpacked over the center of the overpack container using an approved lifting device in accordance with FBP-DD-PRO-00136, *Hoisting and Rigging Procedure*.
- G.** Lower the container into the overpack.
- H.** Do not place another container or additional fissile material into the overpack.

NCSE-SM-ERWM-026, 6.5.8
- I.** Close lid on overpack in accordance with FBP-WM-PRO-00039.
- J.** Label the new overpack container and complete documentation as described in Subsection 8.11.
- K.** Disposition the overpack container in accordance with Subsection 8.12.
- L.** Clean up any spilled material per Subsection 8.3 prior to bringing another container into the process area.

8.6.9 Separating (Splitting)

- A.** No more than one container shall be processed at a time.

NCSE-SM-ERWM-026, 6.5.2
- B.** Tape plastic to the floor to contain material that could be released during the operation.
- C.** Obtain empty receiving container(s).
- D.** Open the parent container in accordance with FBP-WM-PRO-00039.
- E.** Remove bungs, caps, and/or lids from receiving containers.
- F.** Position the receiving container(s) near the parent container.
- G.** **IF** the parent container is an unfavorable geometry container, **THEN** transfer desired amount of material to the receiving container(s) per the following:
 - 1) Contents may be emptied onto a flat horizontal surface to sort for repackaging.

NCSE-SM-ERWM-026, 6.5.9
 - 2) Contents may be transferred manually into one or more empty containers.

NCSE-SM-ERWM-026, 6.5.10
 - 3) **IF** the ²³⁵U concentration is known, **THEN** a drum vacuum or transfer pump may be used to transfer the material in accordance with Subsections 8.8, *Material Transfer Scenarios*, and 8.9, *Transferring Material Using a Drum Vacuum or Transfer Pump*.

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CAUTION

Separating the contents of favorable geometry (i.e., small diameter) containers into unfavorable geometry containers is not permitted under this procedure. This activity is controlled under the requirements of FBP-WM-PRO-00164.

- H. IF** the parent container is a favorable geometry container, **THEN** transfer desired amount of material per the following:
 - 1) Contents may be transferred manually into one or more empty NCS-approved small diameter containers.
 - 2) **IF** the ²³⁵U concentration is known, **THEN** a transfer pump may be used to transfer material to other NCS-approved small diameter containers in accordance with Subsections 8.8 and 8.9.
- I.** Ensure any spilled material is cleaned up and placed in the receiving container.
- J.** Once material has been transferred, replace lids on parent container and receiving container(s). **IF** the containers are a drum or box, **THEN** close according to FBP-WM-PRO-00039. Small diameter containers shall have the lids installed.
- K.** Check for contamination on containers and contact RP for decontamination and survey, as needed.
- L.** Label the receiving and parent container(s) and complete documentation, as described in Subsection 8.11.
- M.** Disposition the parent/receiving containers in accordance with Subsection 8.12.

8.7 Adding Non-Fissile Material for Downblending

Qualified Worker

- 8.7.1** Tape plastic to the floor to contain material that could be released during the operation.
- 8.7.2** **IF** splitting a drum or box, **THEN** open the parent container in accordance with FBP-WM-PRO-00039.
- 8.7.3** **IF** opening a Small Diameter container, **THEN** remove the lid.
- 8.7.4** Add clean (non-fissile) compatible material per direction of the WDS.
- 8.7.5** Ensure any spilled material is cleaned up and placed in the parent container.

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- 8.7.6** Once non-fissile material has been added, close drums per FBP-WM-PRO-00039 and/or install lid(s) on small diameter containers.
- 8.7.7** Check for contamination on containers and contact RP for decontamination and survey, as needed.
- 8.7.8** Containers with non-fissile and fissile material shall be mixed to ensure contents are homogenous.
- Small diameter containers may be mixed by moving the container as needed to ensure the end result is homogenous.
 - Drums may be placed on a drum roller.
- 8.7.9** Check for contamination on containers and contact RP for decontamination and survey, as needed.
- 8.7.10** **IF** the container is a drum or box, **THEN** label the receiving container(s) and complete documentation, as described in Subsection 8.11.
- 8.7.11** **IF** the container is a small diameter container, **THEN** label and bag in accordance with FBP-NO-PRO-00100, *Nuclear Criticality Safety (NCS) Requirements for Container and Component Handling and Storage*.

8.8 Material Transfer Scenarios

Qualified Worker

- 8.8.1** **IF** only one (1) 10 liter or larger container with $\leq 15\text{g }^{235}\text{U}$ is being repackaged into one or more equal size (10L) or larger containers, and no additional fissile material from other sources is involved, **THEN:**
- A.** Handle the receiving container(s) as NCS exempt or store under an applicable NCSE.
 - B.** Handle the transfer process and movement as exempt from NCS controls with no spacing requirements between the parent and receiving containers.
 - C.** Transfer material per Subsection 8.10.
- 8.8.2** **IF** only one (1) 55-gallon or larger container with $\leq 100\text{g }^{235}\text{U}$ is being repackaged into one or more equal size (55 gallon) or larger containers, and no additional fissile material from other sources is involved, **THEN:**
- A.** Handle the receiving container(s) as NCS exempt or store under an applicable NCSE.
 - B.** Handle the transfer process and movement as exempt from NCS controls with no spacing requirements between the parent and receiving containers.

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C. Transfer material per Subsection 8.10.

8.8.3 IF only one (1) drum with nominal volume of 5- to 110-gallons stored under NCSE-SM-ERWM-020, NCSE-PLANT108 is transferred (vacuumed or pumped) to one or more drums, and no additional fissile material from other sources is involved, **THEN:**

A. Handle the receiving drum(s) under the controls of the same NCSE as the parent container.

B. No spacing is required between the parent and daughter containers.
NCSE-SM-ERWM-004, 6.5.8

C. Transfer material per Subsection 8.9.

8.8.4 IF only one (1) drum stored under NCSE-SM-ERWM-023 is being transferred (vacuumed or pumped) to one or more 55-gallon drums, **THEN** go to Subsection 8.6, *Repackaging Fissile Material*.

NCSE-SM-ERWM-004, 6.5.9

NOTE

Other container types include small diameter containers, boxes, and any other 5- to 110-gallon drum not controlled specifically by one of the NCSEs listed in Steps 8.8.1 and 8.8.2.

8.8.5 IF multiple containers or other container types (such as small diameter containers or boxes) are being transferred into one or more drums, **THEN:**

NOTE

Steps A and B below do not apply to small diameter containers.

NCSE-SM-ERWM-004, 6.5.10.a Note
NCSE-SM-ERWM-004, 6.5.10.b Note

A. **IF** the material in all of the containers from which the transfer is being made is known to be ≤ 50 ppm ^{235}U , **THEN:**

- 1) Handle the receiving drums (any size ≥ 5 gallons) as NCS exempt containers or store under an applicable NCSE.
- 2) Handle the transfer process and movement as exempt from NCS controls with no spacing requirements between the parent and receiving containers.

NCSE-SM-ERWM-004, 6.5.10.a

- 3) Transfer material per Subsection 8.9, **OR** as directed by supervision.

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B. IF the material in all of the containers from which the transfer is being made is known to be > 50 ppm and ≤ 500 ppm ^{235}U , **THEN**:

- 1) Only one receiving drum (any size 5 to 55 gallons) shall be filled at a time.
- 2) The drum shall be spaced at least two feet edge-to-edge from the parent container(s) and other fissile containers.

NCSE-SM-ERWM-004, 6.5.10.b

- 3) Transfer material per Subsection 8.9.

NOTE

Transfers involving greater than a safe mass of uranium (i.e., not an approved safe batch under NCSE-PLANT013) from small diameter containers, boxes, or multiple parent containers is not permitted by this procedure.

NCSE-SM-ERWM-004, 6.5.10.c Note

- 4) **IF** the material in at least one of the containers from which the transfer is being made is > 500 ppm ^{235}U , or if the concentration is unknown, or if small diameter containers are involved in the transfer, **THEN** follow the batching requirements of FBP-WM-PRO-00164 or FBP-WM-PRO-00175, in addition to the requirements for drum vacuums in this procedure.

NCSE-SM-ERWM-004, 6.5.10.c

8.9 Transferring Material Using a Drum Vacuum or Transfer Pump

Qualified Worker

8.9.1 Preparations

NOTE

The receiving container(s) for the drum vacuum, if used, **shall** be a 55-gallon drum(s).

*NCSE-SM-ERWM-004, 6.5.2
NCSE-SM-ERWM-004, 6.5.7 Note*

Box to drum transfers (e.g., extracting liquids) are covered under this procedure; however, box to box transfers are not.

NCSE-SM-ERWM-004, 6.5.7 Note

- A.** Obtain the receiving container(s).
- B.** Ensure receiving container(s) are the same size as the parent container(s) **OR** a nominal 55-gallon drum.
- C.** Ensure FBP-WM-PRO-00016-F02 is filled out and approved by the Facility Manager (and NCS Engineer, if required) prior to material transfer.

NCSE-SM-ERWM-004, 6.5.7

NCSE-SM-ERWM-004, 6.5.1

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8.9.2 Position the receiving container, using a spill containment pallet if transferring liquids. Plastic sheeting may be used if transferring solids.

8.9.3 Maintain a minimum of 2 feet edge-to-edge spacing between the receiving drum exceeding 50 ppm ²³⁵U and any other container(s) of fissile material during transfer of material that is suspected to have greater than 50 ppm ²³⁵U.

NCSE-SM-ERWM-004, 6.5.3

8.9.4 IF the parent container is an overpack, THEN obtain a survey, as directed, of the overpack.

8.9.5 Open parent and receiving container per FBP-WM-PRO-00039.

CAUTION

Precaution shall be taken to prevent the mixing of incompatible chemicals/wastes during container filling operations, including transfer equipment that could result in a chemical reaction.

8.9.6 Insert the suction pipe/hose of the transfer mechanism (i.e., drum vacuum or transfer pump) into the parent container.

8.9.7 Insert transfer mechanism discharge hose into receiving container and start the transfer mechanism to begin transferring the waste to the receiving container.

8.9.8 Stop the transfer mechanism when the waste has been transferred.

8.9.9 Wipe the suction pipe/hose as the transfer mechanism is removed from the parent container.

8.9.10 WHEN the discharge hose of the transfer mechanism is drained, THEN remove the hose from the receiving container and wipe.

8.9.11 Close drums per FBP-WM-PRO-00039.

8.9.12 Label the new container and complete documentation per Subsection 8.11.

8.9.13 Disposition parent/receiving containers and transfer pump/drum vacuum per Subsection 8.12.

8.9.14 Clean up any spilled material per Subsection 8.3.

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Spill Cleanup and Repackaging/Transferring Waste

8.10 Repackaging NCS-Exempt Material

CAUTION

If radioactive waste is being batched, then the requirements of FBP-WM-PRO-00164 or FBP-WM-PRO-00175 must also be met.

NOTE

In accordance with NCS-D-SM-01-0011, *Fissionable Exempt Material Determination*, containers 10 liters or larger containing ≤ 15 grams ^{235}U ; and, containers 55 gallons or larger containing ≤ 100 grams ^{235}U , are considered NCS exempt.

Qualified Worker

8.10.1 Transferring

- A. Obtain the receiving container(s).
- B. Ensure receiving container(s) are the same size as **OR** larger than the parent container(s).
- C. Clean, non-fissile material may be repackaged into any size container.
- D. Place plastic sheeting on the ground as needed.
- E. Position the receiving container near the parent container.
- F. **IF** the parent container is an overpack, **THEN** obtain a survey, as directed, of the overpack.

WARNING

A sudden release of pressure from the drum could cause lid or bung to separate, resulting in personnel injury. Utilize lid restraining device (i.e., drum netting) prior to opening the drum.

- G. Open the parent and receiving container per FBP-WM-PRO-00039.
 - 1) When lid is removed, drain any lid condensate into container.
 - 2) Obtain a survey as directed of the accessible portion of the inner container.
 - 3) Verify visually whether the inner container, if present, is not breached.
 - 4) **IF** the inner container cannot be visually verified for a breach, **THEN** open the inner container using the same method used for the overpack.

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- H.** Transfer material manually or proceed to Subsection 8.9 if using a vacuum or pump.
- I.** Clean up any spilled material and place in the receiving container.
- J.** Ensure containers are weighed per direction from NMC&A or WDS.
- K.** Once material has been added, close drums per FBP-WM-PRO-00039 and/or install lid(s) on small diameter containers.
- L.** Label the new container and complete documentation per Subsection 8.11.
- M.** Disposition parent and receiving containers per Subsection 8.12.

8.10.2 Overpacking

- A.** Select an appropriate size overpack container.
- B.** Open overpack container in accordance with FBP-WM-PRO-00039.
- C.** Place an approved liner in the overpack container or use an approved pre-lined container.
- D.** **IF** overpacking a leaking container, **THEN** place a small amount of absorbent material in the overpack container per direction of the WDS.
- E.** Lift the container to be overpacked over the center of the overpack container using an approved lifting device in accordance with FBP-DD-PRO-00136.
- F.** Lower the container into the overpack.
- G.** Close lid on overpack in accordance with FBP-WM-PRO-00039.
- H.** Label the new overpack container and complete documentation as described in Subsection 8.11.
- I.** Disposition the overpack container in accordance with Subsection 8.12.
- J.** Clean up any spilled material per Subsection 8.3.

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8.11 Labeling and Documentation

Qualified Worker

NOTE

For one-to-one and one-to-many spill cleanup and transfers, the NCS-required information on the parent container label shall be transcribed onto the receiving drum until individually characterized. Drums filled under the 500 ppm ^{235}U criterion shall be labeled with the highest concentration of the parent containers, and drums filled under batching controls shall be labeled from the batch list results.

NCSE-SM-ERWM-004, 6.6.1 Note

8.11.1 Label containers in accordance with FBP-WM-PRO-00039.

- A. IF container is empty, THEN label per direction of the WDS.
- B. Include the ^{235}U mass or concentration (if 500 ppm ^{235}U or less) and the enrichment (if known) on each the label of each fissile material receiving container.
- C. IF the container is NCS exempt, THEN note "NCS EXEMPT" on the label.

NCSE-SM-ERWM-004, 6.6.1

Cognizant Manager

8.11.2 Document disposition of waste in the Project Record.

8.12 Disposition of Containers and Drum Vacuums/Transfer Pumps Used for Material Transfer or Spill Cleanup

Qualified Worker

8.12.1 Disposition containers in accordance with FBP-WM-PRO-00264, *Waste Disposition*.

8.12.2 Return parent containers to an array under their original storage NCSE until characterized and placed into a storage array under another NCSE (or until determined NCS-exempt) based upon the results of the characterization.

NCSE-SM-ERWM-004, 6.5.11

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NOTE

Additional characterization is not required for drums filled under the 500 ppm ^{235}U criterion or an approved safe mass batch under NCSE-PLANT013.

NCSE-SM-ERWM-004, 6.5.12 Note

- 8.12.3** Store receiving drums in an array under the same NCSE as the parent container until characterized and placed into a storage array under another NCSE (or until determined NCS-exempt) based upon the results of the characterization.

NCSE-SM-ERWM-004, 6.5.12

- 8.12.4** Following the transfer (vacuum or pumping) of NCS-exempt material ensure the vacuum unit or transfer pump is bagged and placed on a spill pallet. Ensure the vacuum or transfer pump is labeled NCS-exempt and apply a label indicating the material transferred using the device.

- 8.12.5** Following each spill cleanup or transfer operation involving material >500 ppm ^{235}U or material of unknown ^{235}U concentration, ensure the following NCS requirements are observed:

- The drum vacuum unit or transfer pump shall be spaced at least two feet edge-to-edge from other fissile materials (including other vacuums/pumps) until characterized for uranium holdup (e.g., NDA measured) and demonstrated to meet NCS-exempt criteria.

NCSE-SM-ERWM-004, 6.5.13.a

- Drum vacuums and transfer pumps, and vacuums/pumps used in fissile operations outside of this procedure, shall not be used again per this procedure until demonstrated to meet NCS-exempt criteria.

NCSE-SM-ERWM-004, 6.5.13.b

- Used drum vacuums and transfer pumps that cannot be demonstrated to be NCS-exempt shall be handled and stored as contaminated materials/equipment (CME) under NCSE-SM-ERWM-012 per FBP-WM-PRO-00036, *Radiologically Contaminated Materials and Equipment*.

NCSE-SM-ERWM-004, 6.5.13.c

9.0 POST-PERFORMANCE ACTIVITIES

Qualified Worker

- 9.1** Ensure that area housekeeping is complete and all equipment/supplies are returned to the proper storage locations.

Supervisor

- 9.2** Request RP to perform post survey. Down-post the work area.
- 9.3** Remove the work area boundary.

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10.0 RECORDS

10.1 Records Generated

- A. FBP-WM-PRO-00016-F02, *NCSE-SM-ERWM-004 Verification Check Sheet*
- B. FBP-WM-PRO-00016-F03, *Packaging Log*
- C. FBP-WM-PRO-00046-F05, *Change to Waste Tracking Information*
- D. Repackaging logs
- E. Tracking forms

10.2 Requirements

Records generated or received as a result of performing this procedure shall be managed in accordance with FBP-BS-PRO-00062, *Records Management Process*.

11.0 DEFINITIONS/ACRONYMS

11.1 Definitions

- A. **Favorable Geometry Container** – A container with a nominal diameter of ≤ 5 inches.
- B. **Overpack** – To place a single container into another, larger container. Waste is not removed from the original container; the entire original container is placed into the overpack container.
- C. **Qualified Workers** – FBP personnel who are trained, qualified, and authorized to perform work at the PORTS worksite.
- D. **RCRA Hazardous Waste** – A material that meets the definition of a waste in OAC 3745-51-02 and the definition of hazardous waste in OAC 3745-51-03.
- E. **Transfer** – To move the contents of one container into another container.
- F. **Waste Contaminated with PCBs** – Waste regulated under the TSCA that contains PCBs.

11.2 Acronyms

- A. **CA** – Contamination Area
- B. **CCZ** – Contaminated Control Zone
- C. **CERCLA** – Comprehensive Environmental Response and Liability Act
- D. **ESH&Q** – Environmental, Safety, Health and Quality

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- E. HCA – High Contamination Area
- F. Hg – Mercury
- G. NCSE – Nuclear Criticality Safety Evaluations/Approvals
- H. OD – Outer Diameter
- I. OS&H – Occupational Safety and Health
- J. PCB – Polychlorinated Biphenyl
- K. PPE – Personal Protective Equipment
- L. PSS – Plant Shift Superintendent
- M. PVC – Polyvinyl Chloride
- N. RCRA – Resource Conservation and Recovery Act
- O. RP – Radiation Protection
- P. TSCA – Toxic Substances Control Act
- Q. WMG – Waste/Material Generation

12.0 SOURCE REFERENCES

- A. 40 CFR 761.125, *Polychlorinated Biphenyl (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions; Requirements for PCB Spill Cleanup*
- B. DOE/OR/11-3037/V1&D0, *RCRA Part B Permit Renewal Application, Vol. 1, Text, 02/015/00, and corresponding HW Facility Installation & Operation Permit Renewal, "General Permit Conditions"*
- C. FBP-JHA-24-5013, *FBP-WM-PRO-00016 Spill Cleanup & Repackaging/Transferring Waste*
- D. FBP-WM-PRO-00330, *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Waste Storage and Staging Areas.*
- E. NCSD-SM-01-0011, *Fissionable Exempt Material Determination*
- F. NCSE-PLANT013, *Batching Solutions and Solids*
- G. NCSE-PLANT108, *Drum and Box Storage*
- H. NCSE-SM-ERWM-004, *Use of Drum Vacuums & Transfer Pumps in Fissile Areas*
- I. NCSE-SM-ERWM-020, *Drum Storage in DOE Non-leased Facilities*

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- J.** NCSE-SM-ERWM-023, *Storage and Handling of Drums of Oily Material with > 20 wt. % ²³⁵U*
- K.** NCSE-SM-ERWM-026, *Repackaging of Fissile Container*
- L.** NCSE-PLANT006, *General Use of Small Diameter Containers for Storing High Enriched Material*

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Appendix A
REGULATORY REQUIREMENTS FLOW DOWN

1. 40 CFR 761.125, *Polychlorinated Biphenyl (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions; Requirements for PCB Spill Cleanup*
2. DOE/OR/11-3037/V1&D0, *RCRA Part B Permit Renewal Application, Vol. 1, Text, 02/015/00, and corresponding HW Facility Installation & Operation Permit Renewal, "General Permit Conditions"*

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Appendix B
REPACKAGING OF FISSILE WASTE CONTAINERS

Repackaging of Fissile Waste Containers

Safe Mass Table

| Enrichment (% ^{235}U) | <1 | ≤3 | ≤3.5 | ≤4 | ≤5 | ≤10 | ≤15 | ≤20 | ≤30 | ≤40 | ≤50 | ≤100 |
|--|--------------|-----------|-------------|-----------|-----------|------------|------------|------------|------------|------------|------------|-------------|
| Non-oily (g ^{235}U) | unlimited | 1180 | 1000 | 900 | 800 | 600 | 520 | 480 | 440 | 410 | 390 | 350 |
| Oily (g ^{235}U) | unlimited | 1050 | 670 | 670 | 670 | 430 | 350 | 350 | 280 | 280 | 280 | 240 |

Cover Containers Greater than Safe Mass ^{235}U when Unattended

Secure Lids of Containers Greater than Safe Mass ^{235}U when Unattended

Only Open Containers Greater than Safe Mass ^{235}U Within an Enclosure

Water and Oil Shall Not be Added to Containers with Greater than Safe Mass ^{235}U

Do Not Stack Containers

No Additional Fissile Material Shall be Added to an Overpack Container

Only One Container Shall be Placed Into an Overpack Container

**Space Repackaging Operations at Least Two Feet Edge-to-Edge from Container Staging Areas
and Other Uranium-Bearing Materials**

Transfer and Process No More Than One Waste Container in an Enclosure at a Time

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Attachment A
NCSE-SM-ERWM-004 VERIFICATION CHECK SHEET



NCSE-SM-ERWM-004 VERIFICATION CHECK SHEET

Complete by checking appropriate conditions in appropriate section for activity to be performed.

1.0 Vacuuming Spills

- _____ A. Only one NCSE-SM-ERWM-020, NCSE-PLANT108 or NCSE- X-326 STORAGE drum is involved in the spill.
 (Handle and label receiving containers like the parent container.)

FROM MULTIPLE CONTAINERS OR FROM OTHER CONTAINER TYPES (EXCEPT SMALL DIAMETER CONTAINERS):

- _____ B. If material being cleaned up is ≤ 50 ppm ^{235}U (May handle as NCS exempt), or
 _____ C. If material being cleaned up is > 50 ppm and ≤ 500 ppm ^{235}U
 (Handle like the parent container), or _____

FROM MULTIPLE CONTAINERS OR FROM SMALL DIAMETER CONTAINERS:

- _____ D. If material being cleaned up is $<$ safe mass ^{235}U
 (Perform batching per NCSE-PLANT013 requirements).

2.0 Transfer with a Vacuum or Pump

- _____ A. Transfer is from one NCSE-SM-ERWM-020 or NCSE-X-326 STORAGE drum
 (Handle and label receiving containers like the parent container)
 _____ B. Transfer is from one NCSE-SM-ERWM-023 drum (Perform repackaging per NCSE-SM-ERWM-026 requirements)

FOR MULTIPLE CONTAINERS OR FROM OTHER CONTAINER TYPES (EXCEPT SMALL DIAMETER CONTAINERS):

- _____ C. If material being transferred is ≤ 50 ppm ^{235}U (May handle as NCS-exempt), or
 _____ D. If material being transferred is > 50 ppm and ≤ 500 ppm ^{235}U
 (Handle like the parent container), or _____

FROM MULTIPLE CONTAINERS OR FROM SMALL DIAMETER CONTAINERS:

- _____ E. If material being transferred is \leq safe mass ^{235}U
 (Perform batching per NCSE-PLANT013 requirements).

3.0 Sign this section of the checklist prior to vacuum or transfer and file.

| | |
|---|------|
| Task Manager or Operations Supervisor | Date |
| Facility Manager or Designee Approval | Date |
| NCS Engineer Approval (Not Required for 1.0-A or 2.0-A) | Date |

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Attachment B
PACKAGING LOG
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PACKAGING LOG

| Parent Start Info. | | | Daughter Start Info. | | | Parent End Info. | | Daughter End Info. | | | |
|---|-------------|---------------------------|----------------------|-------------------------------|----------------------------|-------------------------|--|---------------------------------|-------------------------------------|---|---------------------------|
| Parent ID | Parent type | Parent start weight (lbs) | Daughter ID | Daughter type | Daughter tare weight (lbs) | Parent end weight (lbs) | Is parent completely empty? | Parent disposition (ED, EA, PA) | Type of absorbent added to daughter | Amount of absorbent added to daughter (lbs) | Daughter end weight (lbs) |
| | | | | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | | | | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | | | | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | | | | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
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| | | | | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | | | | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | | | | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| Packaging operation for shipment? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | Packaging Operator signature: | | | | Waste Engineer signature: | | | |

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PACKAGING LOG
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PACKAGING LOG

Notes: The "parent" container is the one from which waste is removed. The "daughter" container is the one to which the waste is then added. The "start weight" is the gross weight (in pounds) *before* the packaging operation begins. The "end weight" (in pounds) is the gross weight *after* the packaging operation is completed; for the daughter container, the end weight includes the waste, any absorbent added, the container itself, etc.

After the packaging operation is complete, a "tracking" form will need to be completed for each daughter, and a "Change to Waste Tracking Information" form will need to be completed for each parent (even if the parent is entirely empty after packaging).

After packaging, the parent container must be categorized as one of the following:

ED (empty—discarded; the parent container is disposed of as scrap)

EA (empty—active; the parent container is empty but will be re-used)

PA (partial—active; the parent container is not empty and will continue to be tracked as an active waste container)