

3. LIMITATIONS AND PRECAUTIONS

- The proper airflow control for the ASRF Manual Disassembly Area (MDA) or the SRV Personnel Entry Airlock (146A), the SRV Maintenance Airlock (146C), and the SRV Equipment Airlock (146B) shall be verified as being equal to or greater than 50 linear feet per minute (ft/min) across the process area by Technical Support personnel. If 50 linear ft/min cannot be maintained, the process shall be stopped, and Technical Support personnel shall be contacted for guidance.
- Before using the SRV Personnel Entry Airlock (146A), the SRV Maintenance Airlock (146C), and the ASRF Manual Disassembly Area (MDA) ensure that a current ALARA Review has been done.
- SRV and ASRF Airlock doors shall be locked by Technical Support personnel.
- A minimum of one Process Specialist shall be required for ASRF operations as applicable.
- A minimum of three Waste Technicians shall be required to perform this procedure.
- A minimum of one Technical Support personnel shall be required to perform this procedure.
- Leather gloves shall be worn over Anti-C gloves when handling or moving drums.
- The required personal protective equipment (PPE) shall be designated on the Radiation Work Permit (RWP) by Radiological Operations and by the Industrial Hygiene and Safety Representative on one of the following, as applicable:
 - Formal Written Guidance from RMRS Industrial Hygiene and Safety
 - Building 776/777 Health and Safety Plan
- Drums containing over 750g total fissile material and "Outlier" drums (drums requiring physical spacers) shall not be vented. Criticality Safety is contacted for guidance to handle these drums.

3. **LIMITATIONS AND PRECAUTIONS (continued)**

- Only solid-matrix Item Description Code (IDC) drums shall be chosen for venting. Drums containing IDCs considered as solution shall not be processed under this procedure.
- Waste generated during the gas sampling process, that was not a part of the original waste drum contents, is considered secondary waste. Secondary waste shall not be discarded in the original waste drum or with the waste drum contents. Secondary waste shall be processed according to the waste packaging procedures.

4. **PREREQUISITE ACTIONS**

4.1 **Planning and Coordination**

Supervisor

- [1] Ensure that a pre-evolution briefing that authorizes performance of this procedure has been held in accordance with 1-31000-COOP-011, Pre-Evolution Briefing.
- [2] Ensure that all Solid Waste Operations personnel involved in performing this procedure meet the minimum training and qualification requirements.
- [3] Ensure that the following additional personnel are available to perform this procedure, as required:
 - Radiological Control Technician (RCT)
 - Analytical Laboratory Support personnel
 - Nuclear Material Control (NMC) personnel

NOTE *Plastic sheeting, medium-sized bags, fire-retardant plastic and 55-gal poly-liner bags are controlled by Criticality Safety general comment section of the Nuclear Safety Manual (NSM) for Building 776.*

- [4] Verify that the Nuclear Material Safety Limit (NMSL)/Criticality Safety Operating Limit (CSOL) Pre-Surveillance has been completed in accordance with 4-B19-NSM-03.12, Nuclear Material Safety Limits and Criticality Safety Operating Limits Surveillance.
- [5] Ensure before using the SRV Personnel Entry Airlock (146A), the SRV Maintenance Airlock (146C), and the ASRF Manual Disassembly Area (MDA) that a current ALARA Review has been done.

4.1 Planning and Coordination (continued)

- [6] Obtain guidance from the Technical Support personnel for the configuration of the inner and outer Airlock/Area doors and for support of the sampling or aspiration.

Waste Technician

- [7] Verify that the required PPE has been designated on the RWP by Radiological Operations, and by the Industrial Hygiene and Safety Representative on one of the following, as applicable:
- Building 776/777 Health and Safety Plan
 - Formal Written Guidance from RMRS Industrial Hygiene and Safety
- [8] Verify that the key to enter the ASRF MDA or SRV Airlock is available, and that the ASRF MDA or SRV Airlock doors have been unlocked for the gas sampling or drum/rigid liner venting.
- [9] **IF** any drum is suspect for improper packaging, (i.e. no inner containment), **THEN** perform the following:
- [A] Immediately cease operations.
- [B] Contact Technical Support personnel or supervision.

Technical Support Personnel or Supervision

- [C] Contact the shift manager.

Waste Technician

- [10] Obtain the list of drums scheduled for gas sampling or drum/rigid liner venting from the Technical Support personnel.
- [11] Verify that the required waste drums are prepared in accordance with the following procedures:
- 4-D99-WO-1100, Solid Radioactive Waste Packaging
 - 1-M12-WO-4034, Solid Radioactive Waste Packaging Requirements
 - 1-C80-WO1102-WRT, Waste/Residue Traveler Instructions

4.1 Planning and Coordination (continued)

Technical Support Personnel

- [12] Verify that the waste drums scheduled for Headspace Gas Sampling have been in the storage area of Building 776/777 for the prescribed equilibration period (a minimum of 33 hours) for gas sampling.
- [13] Verify that the airflow from Room 134 West to the ASRF or SRV Airlocks is in accordance within the specified building limits.
- [14] **IF** a remote drum punch device is to be used,
THEN verify that a gas supply cylinder is pressurized to greater than 100 psi and is available for use.
- [15] Verify that personnel using the remote drum punch device have successfully completed training class 25-914-01, Pressure Safety I.

RCT

- [16] Perform pre-job survey of the ASRF Area or SRV Airlock as applicable.

Waste Technician

- [17] Verify that a pre-job survey of the ASRF Area or the SRV Airlock, as applicable, has been performed, and that the airlock is within RWP Suspension Guide Limits.
- [18] In the event of an unexpected condition, perform the following steps:
 - [A] Immediately cease operations.
 - [B] Contact Technical Support personnel or supervision.

Supervision or Technical Support Personnel

- [C] Contact the Shift Manager.

4.2 Materials and Equipment

4.2.1 Measuring and Test Equipment (M&TE)

Waste Technician

- [1] Ensure that the following M&TE is available for use as required by Technical Support personnel:
- Calibrated torque wrench (0-100 ft-lb certified to ± 5 ft-lb and displaying a current Metrology Laboratory Certification Tag)
 - Calibrated gas meter
 - Calibrated TSI airflow meter
 - Vacuum pump [Diethylphthalate (DOP) tested] with High Efficiency Particulate Air (HEPA) and carbon filters as specified by Technical Support personnel.

4.2.2 Special Tools and Equipment

Waste Technician

- [1] Ensure that the following special tools and equipment, are available for use as required in accordance with Technical Support personnel or supervision:
- 2-in. tape
 - Scissors
 - Medium-sized bag for packaging contaminated Anti-C gloves
 - Fire-retardant plastic sheeting
 - 6-in. and 2-in. fire-retardant plastic tape or duct tape
 - Wiping towels (for decontamination)
 - Decontamination solution
 - 55-gal poly-liner bags labeled as Secondary Waste
 - Carbon filters (as required)
 - Rigid liner lid bung removal tool (as required)
 - TID Application and Removal form (RF-47106)
 - Permanent marker
 - Several extra pairs of Anti-C gloves
 - Remote drum punch
 - Drum lid saver
 - Certified drum lids
 - Grounding strap
 - Brass hammer
 - Brass punch
 - Drum lid retaining device
 - Drum punch
 - Inert gas cylinder

5. INSTRUCTIONS

5.1 Vault Airlock Preparation

This is a stand-alone section and may be performed independently or in conjunction with other Instruction sections.

Gas sampling operations may be performed in the SRV Personnel Entry Airlock, the SRV Equipment Airlock, the SRV Maintenance Airlock, the ASRF Manual Disassembly Area, or the ASRF Transfer Area. To simplify this procedure, these areas are called Airlocks/Areas, unless otherwise specifically addressed in the procedure.

Technical Support Personnel or Supervisor

- [1] Verify that all prerequisites in Section 4, Prerequisite Actions, have been completed, and document on Appendix 1, Procedure Checklist.

Waste Technician

- [2] **IF** any waste drum is rejected because of a packaging problem or rejected from the TRU Waste Characterization Program,
THEN refer to Technical Support personnel for guidance.
- [3] Verify that a pre-job survey of the ASRF or SRV Airlock has been completed, as applicable.
- [4] **IF** contamination is found in the ASRF or SRV Airlock,
THEN decontaminate as directed by the RCT.
- [5] Don PPE in accordance with the following documents, as applicable:
 - RWP
 - Building 776/777 Health and Safety Plan
 - Job Safety Analysis (JSA)
 - Formal Written Guidance from RMRS Industrial Hygiene & Safety

5.1 Vault Airlock Preparation (continued)

- [6] **IF** the SRV Airlock is to be used,
THEN open the SRV Airlock doors as applicable.

- [7] **IF** the ASRF MDA is to be used,
THEN request that the Process Specialist open the Area doors in accordance with 4-M78-776-ASRF-001, ASRF Airlock Operations.

- [8] Cover the floor of the Airlock/Area with fire-retardant plastic sheeting.

- [9] Place the necessary supplies for the gas sampling or venting and aspirating in or at the Airlock/Area, as directed by Technical Support personnel.

- [10] Assist the Analytical Laboratory personnel in placing the gas sampling equipment in or at the appropriate Airlock/Area, as directed by Technical Support personnel.

- [11] Move the scheduled waste drums to the ASRF or SRV preparation area located outside of the Airlock/Area in accordance with 4-C08-A&S-SWH-WO-5220, Material Handling, as directed by Technical Support personnel or supervision.

NOTE *Due to the varying conditions encountered during sampling or venting, Technical Support personnel will provide guidance for the configuration of the inner and outer Airlock/Area doors to support the gas sampling and venting while ensuring adequate airflow (50 linear ft/min) across the process area.*

- [12] Inform the Control Room that adjustments to doors are being made to achieve proper airflow.

- [13] **IF** the SRV Airlocks are to be used,
THEN configure the Airlocks to provide an airflow of 50 linear ft/min averaged across the process area, using directions from Technical Support personnel.

5.1 Vault Airlock Preparation (continued)

- [14] **IF** the ASRF MDA are to be used,
THEN request that the Process Specialist configure the area doors to provide an airflow of 50 linear ft/min averaged across the process area, using directions from Technical Support personnel and 4-M78-776-ASRF-001, ASRF Airlock Operations.

5.2 Headspace Gas Sampling and Drum Venting

This is a stand-alone section and may be performed independently or in conjunction with other Instruction sections.

Technical Support Personnel or Supervisor

- [1] Ensure that all prerequisites in Section 4, Prerequisite Actions, have been completed, and document on Appendix 1, Procedure Checklist.

Waste Technician

- [2] Record the gas meter calibration due date and identification number on Appendix 1, Procedure Checklist.
- [3] Select one waste drum from the ASRF or SRV preparation area.
- [4] Remove the waste drum folder from the top of the drum and give it to the Technical Support personnel or supervision, as required.
- [5] **IF** any unusual or unexpected conditions are encountered,
THEN:
- [A] Immediately cease operations.
- [B] Contact Technical Support personnel or supervision for guidance, as required.

Technical Support Personnel or Supervisor

- [C] Contact Shift Manager.

5.2 Headspace Gas Sampling and Drum Venting (continued)

NOTE *The removal of the carbon filter Tamper-Indicating Device (TID) may be required for the headspace gas sampling through the drum lid filter.*

- [6] **IF** the SRV Airlocks are to be used,
THEN move the selected waste drum from the SRV preparation area to the SRV Airlock, as directed by Technical Support personnel.
- [7] **IF** the ASRF MDA is to be used,
THEN request that the Process Specialist move the waste drum into the ASRF MDA in accordance with 4-M78-776-ASRF-001, ASRF Airlock Operations and guidance from Technical Support personnel.
- [8] **IF** the waste drum is a non-vented drum, (i.e., the drum lid is not equipped with a drum filter),
THEN:
- [A] Move the drum punch or the drum lid retaining device to the designated Airlock/Area, as directed by Technical Support personnel.
- [B] Inspect the waste drum for signs of pressurization (such as a rounded bottom, a bulging lid, or a bulging drum seam).
- [C] **IF** the waste drum shows signs of pressurization,
THEN contact Technical Support personnel or supervision for guidance.
- Procedure 1-62200-HSP-21.03, Hazardous Waste Operations and 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response provide guidance in the event that a waste drum shows signs of pressurization.
- [D] Place the drum scheduled for venting in the drum punch or the drum lid retaining device.
- [E] Secure the drum in accordance with instructions from Technical Support personnel.

5.2 Headspace Gas Sampling and Drum Venting (continued)

[F] Attach the grounding strap to one of the following as designated by Technical Support personnel:

- Waste drum
- Drum punch
- Drum lid retaining device

[G] Place the drum punch in the guide hole as designated by Technical Support personnel.

WARNING

Personnel performing gas-sampling or drum venting or aspirating are NOT to be positioned in the air path as it flows across the drum lid (upwind or downwind). Personnel should be positioned out of the air path to the sides of the drum, to lessen the chance of contamination.

Analytical Laboratory Support Personnel

[H] **IF** gas sampling is to be performed as designated by Technical Support personnel,

THEN:

- [a] Take the headspace gas sample prior to the removal of the waste drum lid in accordance with L-4146, Headspace Gas Sampling of Waste Containers, as directed by Technical Support personnel.

Waste Technician

[9] **IF** the drum is already vented (i.e., the drum lid is equipped with a drum lid filter)

THEN:

- [A] Place the drum in the airlock/area

Analytical Laboratory Support Personnel

[B] Collect headspace gas samples through the drum lid filter in accordance with L-4146, Headspace Gas Sampling of Waste Containers, and as directed by Technical Support personnel.

5.2 Headspace Gas Sampling and Drum Venting (continued)

Technical Support Personnel

- [C] Document the drum headspace gas sample start time and date on the following, as applicable:
- WIPP Sample Drum Log (See Appendix 3, WIPP Sample Drum Log, sample.)
 - Daily Drum Log

Waste Technicians

- [D] Process the drum per the instructions provided in Section 5.5, Rigid Liner Venting and Verification, of this procedure.
- [E] **IF** venting is to be performed as designated by Technical Support personnel, **THEN** use the punch tool or brass hammer to drive the brass punch into the drum lid, as applicable.

WARNING

Care should be taken not to generate sparks when removing the waste drum from the drum punch or the drum lid retaining device due to the potential of an explosive gas mixture.

- [F] Carefully remove the drum punch from the drum hole, as applicable.
- [G] **IF** Technical Support personnel determine that more holes are to be punched in the drum lid,
THEN:
- [a] Move the drum punch to the designated location on the drum lid.
 - [b] Use the punch tool or brass hammer to drive the brass punch into the drum lid, as applicable.
 - [c] Repeat Steps [a] and [b] as necessary.
- [H] Remove the waste drum from the drum punch or the drum lid retaining device, as applicable.

5.2 Headspace Gas Sampling and Drum Venting (continued)

- [I] Request that Technical Support personnel document the drum vent start time and date on the following, as applicable:
- WIPP Sample Drum Log (See Appendix 3, WIPP Sample Drum Log, sample.)
 - Daily Drum Log
- [J] Disconnect the grounding strap.
- [K] **IF** the waste drum is being relocated to the SRV Airlock,
THEN:
- [a] Place a lid saver, such as a drum lid cover, on the punched drum.
 - [b] Move the drum to the SRV Airlock to vent as directed by Technical Support personnel.
- [L] **IF** the waste drum is being relocated to the ASRF MDA,
THEN:
- [a] Move the drum to the ASRF MDA to vent, as directed by Technical Support personnel.
 - [b] Request that the Process Specialist move the waste drums into the ASRF MDA in accordance with 4-M78-776-ASRF-001, ASRF Airlock Operations, as applicable.
- [10] **IF** there are more drums to be headspace gas sampled or vented,
THEN return to Step [3], and perform Steps [3] through [9] until all drums have been headspace gas sampled.
- [11] **WHEN** drums have been placed in the SRV Airlock or the ASRF MDA to vent or headspace gas sample, and will be left unattended,
THEN close and lock the appropriate airlock/area.

5.3 Drum Venting and Sampling Using the Remote Drum Punch

This is a stand-alone section and may be performed independently or in conjunction with other Instruction sections.

Technical Support Personnel or Supervisor

- [1] Ensure that all prerequisites in Section 4, Prerequisite Actions, have been completed, and document on Appendix 1, Procedure Checklist.

Waste Technician

- [2] Inspect the brass punch assembly for defects and abnormal wear (for example, rounded tip, burrs, or peeling).
- [3] **IF** any defects or abnormal wear are detected,
THEN contact Technical Support personnel for guidance.
- [4] Attach the pneumatic hoses of the remote drum punch to one of the following, as directed by Technical Support personnel or supervision:
 - Gas supply cylinder
 - Instrument air drop

CAUTION

Allowing the low side pressure on the drum punch to exceed 150 psi may possibly damage the equipment.

NOTE *The pressure required to punch the waste drum could be as high as 150 psi, although the normal operating pressure for this unit on these drums is 100 psi.*

- [5] Test the gas supply cylinder low side pressure for 100 to 145 psi as specified by Technical Support personnel.
- [6] Record the pressure and date on Appendix 1, Procedure Checklist.
- [7] **IF** the pressure is inadequate,
THEN contact Technical Support personnel for guidance.

5.3 Drum Venting and Sampling Using the Remote Drum Punch (continued)

NOTE *Refer to Appendix 2, Remote Punch Accessories and Options, for a list of the Remote Punch Accessories and Options.*

- [8] Inspect the drum punch assembly for the following missing or defective parts (such as burrs, cracks, or deformations):
- Clevis pin
 - Clevis linchpin
 - Hitch pin
 - Punch collar gaskets
 - Bolts and washers
- [9] **IF** defects are detected,
THEN stop operations and contact supervision or Technical Support personnel for guidance.
- [10] Inspect the drum punch remote control for defects, such as inadequate connectors.
- [11] **IF** defects are detected,
THEN stop operations and contact supervision or Technical Support personnel for guidance.
- [12] Connect the wireless remote control switch to the pressure regulator.
- [13] Connect the pressure regulator to the gas cylinder, as directed by the Technical Support personnel or supervisor.
- [14] Connect the dual parallel tank hose to the pressure regulator, as directed by Technical Support personnel.
- [15] Obtain a waste drum from the ASRF or SRV preparation area.
- [16] Remove the waste drum folder from the top of the drum, and give the waste drum folder to Technical Support personnel or supervision.

5.3 Drum Venting and Sampling Using the Remote Drum Punch (continued)

Analytical Laboratory Support Personnel

- [17] **IF** sampling is to be performed,
THEN obtain sample in accordance with L-4146, Headspace Gas Sampling of Waste Containers, and as directed by Technical Support personnel.

Waste Technicians

- [18] Attach filters to the drum punch vent ports, as directed by Technical Support personnel or supervision.
- [19] **IF** any unusual or unexpected conditions are encountered,
THEN:
- [A] Immediately cease operations.
 - [B] Contact Technical Support personnel or supervision.

Technical Support Personnel or Supervision

- [C] Contact the Shift Manager

NOTE *Due to the varying conditions encountered during sampling or venting, Technical Support personnel will provide guidance for the configuration of the inner and outer Airlock/Area doors for support of the gas sampling and venting to ensure adequate airflow (50 linear ft/min) across the process area.*

- [20] Configure the following, in accordance with guidance from the Technical Support personnel, as applicable.
- Airlock doors (Inform the Control Room that adjustments are being made to doors to achieve proper airflow.)
 - Remote punch
 - Sample equipment
- [21] **IF** operations are to be performed in the SRV Airlock,
THEN move the remote drum punch to the appropriate airlock, as directed by Technical Support personnel or supervision.

5.3 Drum Venting and Sampling Using the Remote Drum Punch (continued)

[22] **IF** operations are to be performed in the ASRF MDA,
THEN request the Process Specialist to move the remote drum punch to the appropriate ASRF MDA in accordance with 4-M78-776-ASRF-001 ASRF Airlock Operations, and as directed by Technical Support personnel.

[23] Inspect the waste drum for signs of pressurization (for example, a rounded bottom, bulging lid, or bulging drum seam).

[24] **IF** the waste drum shows signs of pressurization,
THEN contact Technical Support personnel or supervision for guidance.

Technical Support Personnel or Supervision

[25] **WHEN** a waste drum shows signs of pressurization,
THEN refer to 1-62200-HSP-21.03, Hazardous Waste Operations, and 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, for guidance.

CAUTION

Not centering the drum punch on the drum or operating it incorrectly may damage the drum punch.

Waste Technician

[26] Place the drum punch unit in the center on top of the drum being punched.

[27] Attach the grounding strap to the waste drum.

[28] Trace the hoses back to the remote punch station, as identified by Technical Support personnel.

[29] Inspect the hoses and remove any obstructions, as necessary

WARNING

Failure to keep personnel clear of the punch area during operation may result in personnel injury.

5.3 Drum Venting and Sampling Using the Remote Drum Punch (continued)

CAUTION

Failure to keep unnecessary equipment clear of the punch area may result in equipment damage.

[30] Verify that the drum punch area is clear of personnel and equipment during punching operations.

[31] Open the gas supply valve, and verify the low-side pressure as specified by Technical Support personnel or supervision.

[32] Raise the lever on the remote punch station to punch the waste drum.

Analytical Laboratory Support Personnel

[33] Take the headspace gas sample in accordance with L-4146, Headspace Gas Sampling of Waste Containers, and as directed by Technical Support personnel, if required.

WARNING

Personnel performing gas-sampling, venting or aspirating are not to be positioned in the air path as it flows across the drum lid (upwind or downwind). Personnel should be positioned out of the air path to the sides of the drum, to lessen the chance of contamination.

NOTE *Venting is performed now to allow any pressure that may be in the drum to dissipate.*

Waste Technician

[34] Allow the drum to vent.

[35] Lower the lever valve on the remote punch station to raise the punch from the drum lid.

5.3 Drum Venting and Sampling Using the Remote Drum Punch (continued)

[36] Request that Technical Support personnel document the drum vent start time and date on the following, as applicable:

- WIPP Sample Drum Log (See Appendix 3, WIPP Sample Drum Log, sample.)
- Daily Drum Log

[37] Remove the drum punch unit from the waste drum.

[38] Remove the grounding strap from the waste drum.

[39] **IF** the waste drum is being relocated to the SRV Airlock,
THEN:

[A] Place a lid saver or drum lid cover on the punched drum.

[B] Move the drum to the SRV Airlock to vent, as directed by Technical Support personnel.

[40] **IF** the waste drum is being relocated to the ASRF MDA,
THEN:

[A] Move the drum to the ASRF MDA to vent, as directed by Technical Support personnel.

[B] Allow the Process Specialist to introduce the waste drums into the ASRF MDA in accordance with 4-M78-776-ASRF-001 and Technical Support personnel guidance.

[41] **IF** additional drums are to be sampled or vented,
THEN return to Step [15], and perform Steps [15] through [41], as applicable.

[42] Turn the gas supply valve until the valve is completely closed.

[43] Verify that the low-supply pressure gauge reads 0 psi.

5.3 Drum Venting and Sampling Using the Remote Drum Punch (continued)

- [44] **IF** the low-supply pressure gauge does **NOT** read 0 psi,
THEN repeat Step [43], and ensure that the valve is closed.
- [45] Check to see if the punch is inactive by cycling the punch lever up and down.
- [46] **IF** the punch is **NOT** active,
THEN go to Step [48].
- [47] **IF** the punch is active,
THEN return to Step [44], and perform Steps [44] through [47].
- [48] Disconnect the wireless remote-control switch from the pressure regulator.
- [49] Disconnect the pressure regulator from the gas cylinder, as directed by the Technical Support personnel or supervisor.
- [50] Disconnect the dual parallel tank hose from the pressure regulator, as directed by Technical Support personnel or supervisor.
- [51] Return the remote drum punch to the equipment storage area.
- [52] **WHEN** the drums have been placed in the SRV airlock or ASRF MDA to vent,
AND the drums are unattended,
THEN close and lock the appropriate Airlock.

5.4 Waste Drum Purging

This is a stand-alone section and may be performed independently or in conjunction with other Instruction sections.

Waste drums may require purging to eliminate the need for the drums to vent as prescribed in accordance with Section 5.5, Rigid Liner Venting and Verification. Inert gas or room air may be used to purge the drums, as specified by Technical Support personnel.

5.4 Waste Drum Purging (continued)

Technical Support Personnel or Supervisor

- [1] Ensure that all prerequisites in Section 4, Prerequisite Actions, have been completed, and document on Appendix 1, Procedure Checklist.
- [2] Record the TSI Airflow Meter calibration due date and identification number on Appendix 1, Procedure Checklist, as required.

CAUTION

NOT reinstalling the lid saver/drum lid cover **BEFORE** returning the drum to the SRV Airlock can result in a possibility of accumulating liquids in the drum and may cause damage to the equipment as well as a potential criticality infraction.

- [3] **IF** there is a lid saver/drum lid cover installed on the drum, **THEN** remove the lid saver/drum lid cover.

Waste Technician

- [4] Attach the vent tubing to the purge-gas source (bottle or Air Drop) as directed by Technical Support personnel.

WARNING

Personnel performing gas-sampling, venting, or aspirating are NOT to be positioned in the air path as it flows across the drum lid (upwind or downwind). Personnel should be positioned out of the air path to the sides of the drum, to lessen the chance of contamination.

- [5] Carefully place the vent tubing into one of the vent holes punched in the waste drum lid.
- [6] Record the minimum-required purge time on Appendix 1, Procedure Checklist, as directed by Technical Support personnel.
- [7] Adjust the purge gas supply valve, as indicated on the RotoMeter, to the flow rate specified by Technical Support personnel.
- [8] Record the purge flow rate on Appendix 1, Procedure Checklist.

5.4 Waste Drum Purging (continued)

- [9] Purge the waste drum for a period of time greater than the minimum required time recorded in Step [6].
- [10] **WHEN** the waste drum has been purged for a period of time greater than the minimum required time as indicated in Step [6],
THEN close the purge-gas supply valve.
- [11] Record the actual purge time on Appendix 1, Procedure Checklist.
- [12] Remove the vent tubing from the waste drum.
- [13] **IF** there was a lid saver/drum lid cover removed from the drum, in Step [3],
THEN reinstall the lid saver/drum lid cover.

5.5 Rigid Liner Venting and Verification

This is a stand-alone section and may be performed independently or in conjunction with other Instruction sections.

Technical Support Personnel or Supervisor

- [1] Ensure that all prerequisites in Section 4, Prerequisite Actions, have been completed, and document on Appendix 1, Procedure Checklist.

Waste Technician

- [2] Verify that the drum has vented for the appropriate time as directed by Technical Support personnel.
- [3] Remove the TID from the waste drum in accordance with NMS TID-005, Application and Removal of Tamper-Indicating Devices (TIDs).
- [4] Complete the TID Application and Removal Form (RF-47106).
- [5] Request that the Technical Support personnel document the TID removal in the TID Application/Removal section of the WIPP Sample Drum Log, as required.

5.5 Rigid Liner Venting and Verification (continued)

- [6] Remove the drum lid closure ring bolt and drum lid closure ring.
- [7] Lift the drum lid carefully.

RCT

- [8] Survey for contamination levels.

Waste Technician

- [9] **IF** the contamination level exceeds the limits established by the RWP or any other unexpected conditions are found,
THEN perform the following:
 - [A] Stop operations.
 - [B] Contact Technical Support personnel or supervision.

Technical Support Personnel Personnel or Supervision

- [C] Contact the Shift Manager.
- [10] **IF** the contamination level is within the limits established by the RWP,
THEN control the source of the contamination, and decontaminate in accordance with the RCT and SWO supervision instructions.
- [11] Allow the analytical laboratory personnel to sample through the rigid liner lid, as directed by Technical Support personnel.

Waste Technician

- [12] Visually examine the rigid liner lid.
- [13] **IF** the rigid liner lid does **NOT** have the rigid liner lid bung removed (i.e., an approximate 1 in. diameter hole in the lid)
THEN allow analytical laboratory personnel to sample the rigid liner lid bung.

5.5 Rigid Liner Venting and Verification (continued)

Analytical Laboratory Support Personnel

- [A] Collect headspace gas samples inside the rigid liner in accordance with L-4146, Headspace Gas Sampling of Waste Containers, as required, and as directed by Technical Support personnel.

Waste Technician

- [B] Remove the rigid liner lid bung using the liner bung removal tool.

Technical Support Personnel

- [C] Document the rigid liner vent (aspiration) start time and date on the following, as applicable:
 - WIPP Sample Drum Log (See Appendix 3, WIPP Sample Drum Log, sample.)
 - Daily Drum Log

- [14] **IF** the rigid liner lid does have the rigid liner lid bung removed, **THEN** document the rigid liner vent (aspiration) verification date on the following, as applicable:

- Drum Traveler
- WIPP Sample Drum Log
- Daily Drum Log

5.6 Drum Closure

This is a stand-alone section and may be performed independently or in conjunction with other Instruction sections.

Technical Support Personnel or Supervisor

- [1] Verify that all prerequisites in Section 4, Prerequisite Actions, have been completed, and document on Appendix 1, Procedure Checklist.
- [2] Record the torque wrench calibration due date and identification number on Appendix 1, Procedure Checklist.

5.6 Drum Closure (continued)

Waste Technician

- [3] **IF** the drum and or rigid liner was vented in the ASRF MDA,
THEN request that the Process Specialist remove the waste drum from the ASRF MDA in accordance with 4-M78-776-ASRF-001, ASRF Airlock Operations, and guidance from Technical Support personnel.
- [4] **IF** the waste drum lid was compromised (such as punctured or ripped) during the Headspace Gas Sampling process,
THEN:
- [A] Secure the waste drum with a carbon-filtered drum lid.
- [B] Discard the compromised lid as secondary waste.
- [5] Secure the waste drum in accordance with the following:
- 4-D99-WO-1100, Solid Radioactive Waste Packaging
 - 1-M12-WO-4034, Solid Radioactive Waste Packaging Requirements
- [6] Secure the drum with a TID in accordance with NMS TID-005, Application and Removal of Tamper-Indication Devices (TIDs).
- [7] Complete the TID Application/Removal Form (RF-47106).
- [8] Request that Technical Support personnel document the TID application in the TID Application/Removal section of the WIPP Sample Drum Log.

RCT

- [9] Perform a final survey of the waste drum for removal from the Airlock.

Waste Technician

- [10] **IF** the contamination level exceeds the limits established by the RWP,
THEN perform the following:
- [A] Immediately cease operations.
- [B] Contact Technical Support personnel or supervision.

5.6 Drum Closure (continued)

Technical Support Personnel or Supervision

[C] Contact the Shift Manager

- [11] **IF** the contamination level is within the limits established by the RWP,
THEN control the source of the contamination and decontaminate in accordance with the RCT and SWO supervision instructions.
- [12] **IF** operations are performed in the SRV Airlock,
THEN move the waste drum from the SRV Airlock to the SRV drum preparation area.
- [13] **IF** operations are performed in the ASRF MDA,
THEN request that the Process Specialist move the waste drum from the ASRF MDA to the ASRF preparation area in accordance with 4-M78-776-ASRF-001, ASRF Airlock Operations.

Technical Support Personnel

- [14] Reattach the waste drum folder to the drum, as applicable.
- [15] Document the completion of the following operations in the Comments section of the Traveler, as applicable:
- Headspace gas sampling
 - Venting of the drum
 - Puncturing of the rigid liner lid
- [16] Document the following in the Comments section of the Traveler:
- Drum vent start time and date for the drum, if applicable
 - Rigid liner vent (aspiration) start time and date for the drum, if applicable
 - Removal of the original TID(s)
 - New TID Number(s)

5.7 Airlock Housekeeping

This is a stand-alone section and may be performed independently or in conjunction with other Instruction sections.

Technical Support Personnel or Supervisor

- [1] Ensure that all prerequisites in Section 4, Prerequisite Actions, have been completed, and document on Appendix 1, Procedure Checklist.

RCT

- [2] Survey all equipment and personnel for contamination.

Waste Technician

- [3] **IF** the contamination level exceeds the limits established by the RWP, **THEN** contact supervision for guidance.
- [4] **IF** the contamination level is within the limits established by the RWP, **THEN** control the source of the contamination and decontaminate in accordance with the RCT and SWO supervision instructions.
- [5] **IF** operations are performed in the SRV Airlock, **THEN** remove the equipment used for gas sampling, venting, aspiration, or evacuation from the Airlock, as applicable.
- [6] **IF** operations are performed in the ASRF MDA, **THEN** request that the Process Specialist remove the equipment used for gas sampling, venting, aspiration or evacuation from the MDA in accordance with 4-M78-776-ASRF-001, ASRF Airlock Operations.
- [7] Collect all waste generated during the gas sampling or aspiration operation, and place in the waste drum in accordance with the following:
 - 4-D99-WO-1100, Solid Radioactive Waste Packaging
 - 1-M12-WO-4034, Solid Radioactive Waste Packaging Requirements
 - 1-C80-WO1102-WRT, Waste/Residue Traveler Instructions

5.7 Airlock Housekeeping (continued)

- [8] **IF** operations are performed in the SRV,
THEN close and lock the SRV Airlock outer doors, as applicable.
- [9] **IF** operations are performed in the ASRF,
THEN request that the Process Specialist close and lock the ASRF MDA doors in accordance with 4-M78-776-ASRF-001, ASRF Airlock Operations.

RCT

- [10] Survey personnel leaving the Airlock.

Waste Technician

- [11] Place the contaminated PPE in the waste drum in accordance with the following:
- 4-D99-WO-1100, Solid Radioactive Waste Packaging
 - 1-M12-WO-4034, Solid Radioactive Waste Packaging Requirements
 - 1-C80-WO1102-WRT, Waste/Residue Traveler Instructions
- [12] Secure the waste drum in accordance with the following, as applicable:
- 4-D99-WO-1100, Solid Radioactive Waste Packaging
 - 1-M12-WO-4034, Solid Radioactive Waste Packaging Requirements
 - 1-C80-WO1102-WRT, Waste/Residue Traveler Instructions
 - Safeguards and Accountability Manual
- [13] **IF** operations are performed in the SRV Airlock,
THEN move the waste drum from the SRV Airlock to the SRV drum preparation area, as directed by Technical Support personnel.
- [14] **IF** operations are performed in the ASRF MDA,
THEN request that the Process Specialist move the waste drum from the ASRF MDA to the ASRF preparation area in accordance with 4-M78-776-ASRF-001, ASRF Airlock Operations, and guidance from Technical Support personnel.

6. POST-PERFORMANCE ACTIVITY

Records generated by this procedure are controlled and processed in accordance with 1-V41-RM-001, Records Management Guidance for Records Sources.

The following Quality Assurance Records are generated by the performance of this procedure:

- Appendix 1, Procedure Checklist
- WIPP Sample Drum Log (See Appendix 3, WIPP Sample Drum Log, sample.)

6.1 Disposition of Records

Technical Support Personnel

[1] Submit the following completed Quality Assurance records to the Project Document Control Officer (PDCO), in accordance with 4-Q31-WP-4710, WIPP Project Office Records:

- Appendix 1, Procedure Checklist
- WIPP Sample Drum Log (See Appendix 3, WIPP Sample Drum Log, sample.)

Records prior to submittal will be stored in 1-hr fire-rated cabinets, and turned over to the PDCO in a timely manner.

7. REFERENCES

1-C80-WO1102-WRT, Waste/Residue Traveler Instructions

L-4146, Headspace Gas Sampling of Waste Containers

NMS TID-005, Application and Removal of Tamper-Indicating Devices (TIDs)

Safeguards and Accountability Manual

1-M12-WO-4034, Solid Radioactive Waste Packaging Requirements

1-V41-RM-001, Records Management Guidance for Records Sources

7. **REFERENCES (continued)**

4-B19-NSM-03.12, Nuclear Material Safety Limits and Criticality Safety Operating Limits Surveillance

4-C08-A&S-SWH-WO-5220, Material Handling

4-D99-WO-1100, Solid Radioactive Waste Packaging

4-M78-776-ASRF-001, ASRF Airlock Operations

4-Q31-WP-4710, WIPP Project Office Records

1-31000-COOP-011, Pre-Evolution Briefing

1-62200-HSP-21.03, Hazardous Waste Operations

29 CFR 1910.120, Hazardous Waste Operations and Emergency Response

APPENDIX 1

Page 1 of 2

PROCEDURE CHECKLIST

5.1[1] Prerequisites in Section 4 are complete.

_____/_____
Technical Support or Supervisor Date

5.2[1] Prerequisites in Section 4 are complete.

_____/_____
Technical Support or Supervisor Date

5.2[2] Gas Meter Calibration due date: _____
Identification number: _____

5.3[1] Prerequisites in Section 4 are complete.

_____/_____
Technical Support or Supervisor Date

5.3[6] Drum punch pressure gauge Low side pressure: _____
Date: _____

5.4[1] Prerequisites in Section 4 are complete.

_____/_____
Technical Support or Supervisor Date

5.4[2] TSI Airflow Meter Calibration due date: _____
Identification number: _____

5.4[6] Minimum-required purge time: _____

5.4[8] Purge flow rate: _____

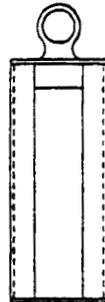
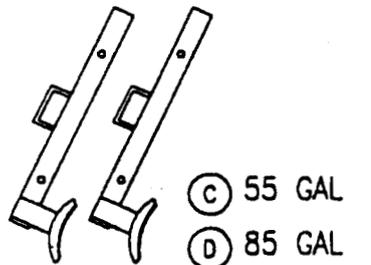
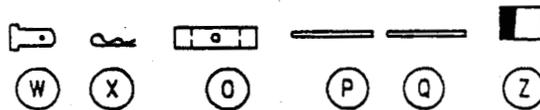
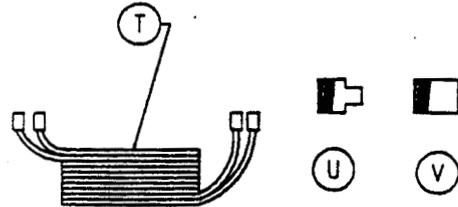
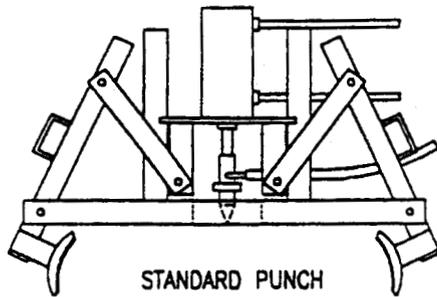
5.4[11] Actual purge time: _____

5.5[1] Prerequisites in Section 4 are complete.

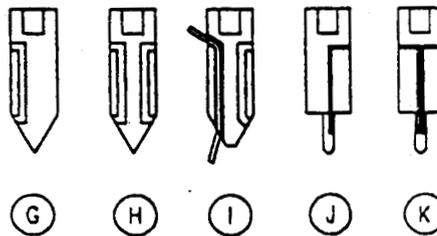
_____/_____
Technical Support or Supervisor Date

APPENDIX 2
Page 1 of 1

REMOTE PUNCH ACCESSORIES AND OPTIONS



CONTAINER GRIPPERS
ARM SETS



PARTS LIST	
C	ARM SET - 55 GAL
D	ARM SET - 85 GAL
G	PUNCH - SINGLE PORT
H	PUNCH - DUAL PORT
I	PUNCH - DUAL PORT SAMPLING
J	PUNCH - SMALL SINGLE PORT
K	PUNCH - SMALL DOUBLE PORT
L	WIRELESS REMOTE CONTROL UNIT
M	HOISTING ATTACHMENT
N	12 VOLT AIR COMPRESSOR
O	PUNCH COLLAR
P	PUNCH COLLAR GASKET - RUBBER
Q	PUNCH COLLAR GASKET - TEFLON
T	DUAL PNEUMATIC HOSE
U	DUAL HOSE CONNECTOR - MALE
V	DUAL HOSE CONNECTOR - FEMALE
W	CLEVIS PIN
X	CLEVIS LINCH PIN
Z	NITROGEN CYLINDER ADAPTER

APPENDIX 3
Page 1 of 1

WIPP SAMPLE DRUM LOG

TRU Waste Characterization Program

1. DRUM INFORMATION				
Drum/Control Number:	<input type="text"/>			
IDC	<input type="text"/>			
2. HEADSPACE GAS SAMPLING EQUILIBRATION INFORMATION				
	Date	Time	Recorder	Verifier
Received	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
33 hr equilibration	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Headspace Gas Sampling	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3. DRUM AND RIGID LINER VENTING INFORMATION				
Was drum (as received) equipped with a drum filter? (Y/N)	<input type="checkbox"/>			
If N (no), Drum Vent Start (i.e., Filter Installation) Date:	<input type="text"/>			
Did the drum have a rigid liner? (Y/N)	<input type="checkbox"/>			
If Y (i.e., yes), did drum rigid liner lid (as received) have a puncture hole with a diameter greater than or equal to 0.3 inch? (Y/N)	<input type="checkbox"/>			
If N (i.e., no), Rigid Liner Vent Start (i.e., Rigid Liner Puncture) Date:	<input type="text"/>			
	Signature	Date		
Recorded By	<input type="text"/>	<input type="text"/>		
Verified By	<input type="text"/>	<input type="text"/>		
4. SUPERVISION RELEASE				
Ensure this form is properly completed and that WEMS has been updated.				
	Signature	Date		
Supervisor	<input type="text"/>	<input type="text"/>		

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