HPIP 4.58

ISSUANCE OF RESPIRATORY EQUIPMENT

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PROCEDURE OWNER (title):	Respiratory Protection Coordinator
OWNER GROUP:	Industrial Health & Safety

G-7

1.0 PURPOSE

1.1 This procedure is to provide guidance in the use and issuance of respiratory equipment.

1.2 This procedure implements the requirements of the American National Standards Institute Z88.2 1992, and is designed to maintain respirator program efficiency, ensure proper respirators are issued to personnel requiring respiratory protection, and provide a documented record of program activities.

1.3 This procedure does NOT cover the issue of respiratory equipment for emergency use. Emergent use equipment is covered in HP 4.7.

2.0 DISCUSSION

2.1 The issue of improper respiratory protection may provide reduced or non-existent levels of personal protection or may even be worse than no respiratory protection at all.

2.2 Only trained Radiation Protection personnel shall issue respirators accordance with this procedure.

2.3 Each respirator user shall sign the Respirator Issue Record, PBF-4234, indicating:

2.3.1 Receipt of the respirator.

2.3.2 That the user understands and agrees to comply with all of the respiratory program requirements.

3.0 RESPONSIBILITIES

3.1 The Respiratory Protection Program Administrator - Responsible for administering and overseeing the respiratory protection program and for conducting the required evaluations of the program. The Site Industrial Health and Safety Manager shall assume overall responsibility of Program Administrator.

3.2 PBNP Respiratory Protection Coordinator - Implements the Respiratory Protection Program, to include development of site-specific procedures and provisions.

3.3 Radiation Protection Organization - Issuance of approved respiratory protection to qualified individuals.

3.4 Respirator Users - It is the responsibility of personnel authorized to use respiratory protection equipment to use such equipment in accordance with this procedure and training received.

4.0 PROCEDURE

4.1 For Issue of Tight Fitting Facepieces Issuer Shall:

4.1.1 Verify respirator user approval requirements:

a. Successful completion of a medical evaluation.

b. Successful completion of respirator wearer training within the last 12 months.

c. Successful completion of a respirator fit test within the last 12 months.

NOTE: **If the Matrix is unavailable, or cannot be updated for any reason, verify the individual's status with Dosimetry personnel/ In addition, the latest printed qualification report may be updated manually to reflect the individual's status.**

Respirator use approval is indicated by looking up an individual's status on either the

- latest printed qualification report,

  OR

- on-line respirator qualification matrix.

4.1.2 For non-radiological (personnel safety) issues, verify that a respirator selection checklist (RSC) has been completed for the specific job for which the respirator will be issued and that the worker understands the requirements of the RSC. The Respirator Issue Record (PBF-4234) is required to be with the appropriate RSC in the Issue Point Issue Log.

NOTE: **IF either 4.1.3a or 4.1.3b are NOT met, DO NOT issue a respirator until both conditions are satisfied.**

4.1.3 Respirator Issue Criteria

a. Verify that the respirator user is clean shaven in the seal area of the respirator, and that no hair protrudes into the facepiece that can interfere with the respirator's working parts.

b. If corrective lenses are required for vision correction by the user (as determine through the online matrix or printed report), then the user shall have the corrective lens insert kit with them at the time of issue, unless soft contact lenses are being worn. (B-3)

4.1.4 Verify the respirator is ready for issue:

a. Respirator is in a sealed plastic bag.

b. Respirator inspection due date has NOT expired on the Respiratory Protection Equipment Inspection (Label), PBF-4232.

4.1.5 If required, issue negative pressure filters or canisters in accordance with respiratory selection checklist or RWP.

4.1.6 Ensure that all filters, cartridges and canisters used are labeled and color coded with the NIOSH approval label, and that the label is NOT removed and is legible (B-1).

4.1.7 Complete the following portions of the Respirator Issue Record, PBF-4234, attached to the issue point copy of the applicable RWP or RSC.

a. Issue date

b. Issued by (legibly printed technician's initials)

4.2 Complete Step 4.3 for tight fitting facepiece issue, Step 4.4 for powered air purifying respirator issue, Step 4.5 for an air-supplied bubble hood respirator issue, or Step 4.6 for a full-face air supplied mask issue.

NOTE: **The user shall complete all required inspections and checks at the issue point prior to being issued the respirator. The completion of this activity is documented on PBF-4234, "Respirator Issue Record."** (B-2)

4.3 Tight Fitting Facepieces

4.3.1 User shall inspect the respirator.

a. Check the condition of the facepiece and headbands for deterioration of the rubber.

b. Inspect the seal area of the facepiece for evidence of distortion and deterioration.

c. Inspect the lens ring for defects and verify the ring is holding the lens securely in place.

d. Inspect the cartridge receptacles for cracks, nicks, and damaged threads.

e. Verify the cartridge gaskets are free of cracks and nicks.

f. Visually inspect the inhalation valves and verify that they are attached to the post on the inhalation valve seat.

g. Remove the exhalation valve cover and inspect the flaps. (B-4)

h. Check all fittings and connections for tightness.

i. Check the facepiece lens for clarity. Lens should NOT be scratched to the point of affecting visibility or otherwise damaged.

j. Install vision correction lens insert kit if required by the user for normal vision. (B-3)

4.3.2 User shall functionally test the respirator.

a. Don the respirator.

b. Breathe normally to verify proper operation of the inhalation and exhalation valves. Valves should NOT stick.

c. Perform positive and negative pressure check (leak check) in accordance with Step 4.3.3 and 4.3.4.

4.3.3 Positive pressure check

a. Close off the exhalation valve by sealing the palm of a hand against the exhalation valve cover and exhale gently into the facepiece.

b. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece and held for 10 seconds without any evidence of outward leakage of air at the seal.

4.3.4 Negative pressure check

a. The design of the inlet opening of some cartridges can NOT be effectively covered with the palm of the hand.

b. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove.

c. Close off the inlet opening of the canister or cartridges by covering with the palm of the hands or by replacing the filter seals.

d. Inhale gently so that the facepiece collapses slightly, and hold the breath for 10 seconds.

e. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

4.3.5 Complete the following portions of the Respirator Issue Record, PBF-4234.

a. Respirator Facepiece Number (from facepiece tag)

b. Size/Type of mask

c. Inspection due date

d. Wearer's name (printed)

4.4 MSA Powered Air Purifier Respirator (PAPR)

NOTE: **If battery or blower fails during use, the wearer will still be able to breath through the filter. If filters become clogged, remove the entire facepiece or disconnect the breathing tube and exit the area in a calm manner. Report any respirator failure to Radiation Protection personnel. Complete PBF-4236.**

4.4.1 Visually inspect all equipment for indication of damage or deterioration.

4.4.2 Ensure gasket is in place on respirator intake connection.

4.4.3 Connect hose to magnehelix.

4.4.4 Turn on blower switch and verify blower operation and flow rate to be approximately 4 CFM or 115 LPM.

4.4.5 Mount battery/blower assembly on belt and don belt.

4.4.6 Turn on blower and connect breathing tube to mask.

4.4.7 Check for cross-threaded connections by grasping the mask front and twisting the hose to insure it will stay attached. The unit is now ready for use.

4.4.8 Log blower and battery ID numbers under applicable columns on issue log.

4.5 Bubble Hood (Radiological Use Only)

NOTE: **Bubble hood users are NOT required to have a fit test to wear the hood, however, they SHALL have medical clearance and appropriate training.**

NOTE: **Radiation Protection personnel will perform the steps outlined below and provide assistance to individuals using air supplied respiratory equipment as needed.**

4.5.1 Verify that the air supply to be used with the bubble hood has been tested in accordance with, and met the requirements of HPIP 4.56, Testing Supplied Air for Air-line Respiratory Equipment.

4.5.2 Check the blue supply air hose, Bullard airline filter (if used), manifold and regulated air hoses for proper installation and ensure that all Chicago fittings are lock wired or pinned to prevent accidental separation of the connection. Verify that the air supply pressure gauge is in current calibration and then turn on the air supply to the manifold (if off).

NOTE: **A shelf life of three (3) years is recommended as a safety precaution; however, this is NOT mandatory if a visual inspection is made of all components and found to be satisfactory prior to putting the respirators in service.**

4.5.3 Inspect all bubble hoods for material softness, clarity, cracks, and seam strength.

4.5.4 Place air distribution unit into the hood and snap retainers around the unit if required. Inspect hood material integrity to ensure that the hood is in operating condition.

4.5.5 Log the issue of the bubble hood on PBF-4234 attached to the appropriate RWP by filling in the Date, writing "Bubblehood" in the "Other Equipment" column, and filling in the Issuer and Wearer Name and Signature columns.

CAUTION

Take care NOT to contaminate the supplied air hose quick disconnects.

4.5.6 Connect the air line fittings and establish air flow to the hood.

NOTE: **The following data is only applicable to the Nuclear Power Outfitters hood NIOSH certification. Use of other manufacturer's hood or other air line length requires approval of the Respiratory Protection Coordinator and strict compliance with the appropriate NIOSH hood certification.**

4.5.7 Adjust air supply pressure so that air flow is between 6 and 15 cubic feet per minute. For an air line length of 50 feet, a pressure range of 20 to 28 psig corresponds to a flow rate range of 6 to 15 cfm.

4.5.8 Put on the outer protective clothing garment.

4.5.9 Place hood over the individual's head, setting the lower edge at the shoulders. Tuck the inner plastic cape inside of the outer protective clothing garment.

4.5.10 Smooth the outer cape against the outside of the upper outer garment.

4.5.11 Tape outer cape to outer protective clothing.

4.5.12 Tighten belt over outer cape and connect the air line to the belt.

4.5.13 Assure adequate freedom of movement by extending and bending the arms. Adjust the hood, if necessary. Run the air line from the belt around the shoulder to the hood. Secure the belt and air line with tape.

4.5.14 Verify that the pressure is within the required pressure range (20-28 psig), adjust if necessary. In general, higher flow provides a higher protection factor.

4.5.15 Document air system PBNP equipment serial numbers and air supply pressure verification on Form PBF-4107a, and periodically check to insure pressure remains constant.

4.5.16 See NP 4.2.32 for standby rescue person(s) requirements. (B-5)

4.6 Supplied Air Respirator – Full Facepiece (Radiological or Chemical Use)

NOTE: **Radiation Protection personnel will perform the steps outlined below and provide assistance to individuals using air supplied respiratory equipment as needed.**

4.6.1 Verify that the air supply to be used with the supplied air hood system has been tested in accordance with, and met the requirements of, HPIP 4.56, Testing Supplied Air for Air-line Respiratory Equipment.

4.6.2 Check the blue supply air hose, Bullard airline filter (if used), manifold and regulated air hoses for proper installation and ensure that all Chicago fittings are lock wired or pinned to prevent accidental separation of the connection. Verify that the air supply pressure gauge is in current calibration and then turn on the air supply to the manifold (if off).

4.6.3 Verify that the user has inspected the facepiece as required in Step 4.3 above.

4.6.4 Inspect the hose and pressure regulator block to insure all connections are tight and that no cracking or degradation of the hose exists.

4.6.5 Connect the supply hose to the mask and clip the regulator block onto a belt.

4.6.6 Log the issue of the airline respirator on PBF-4234 attached to the appropriate RWP by filling in the Date, Respirator Mask Number, Size/Type, Inspection Due Date, logging the Breathing Tube and Regulator Block number is the "Other Equipment" column, and filling in the Issuer and Wearer Name and Signature columns.

CAUTION

Take care NOT to contaminate the supplied air hose quick disconnects.

4.6.7 Connect the air line fittings and establish air flow to the facepiece.

4.6.8 Adjust air supply pressure so that air flow is between 4 and 6 cubic feet per minute. For an air line length of 50 feet, a pressure range of 10 to 15 psig corresponds to a flow rate range of 4 to 6 cfm.

4.6.9 Verify that the pressure is within the required pressure range (10-15 psig), adjust if necessary. In general, higher flow provides a higher protection factor.

4.6.10 Document air system PBNP equipment serial numbers and air supply pressure verification on Form PBF-4107a, and periodically check to insure pressure remains constant.

4.6.11 See NP 4.2.32 for standby rescue person(s) requirements. (B-5)

4.7 User shall sign the Respirator Issue Record, PBF-4234, (if not already done so) indicating receipt of a functional respirator, use of any required corrective lenses, and compliance with the appropriate RWP or RSC.

4.8 Remind the worker to recheck the seal at the work site (if taking it to another site) and to place the respirator in the proper location following use of it.

5.0 REFERENCES

5.1 American National Standards Institute, ANSI Z88.2, Respiratory Protection

5.2 Department of Labor Occupational Safety and Health Administration, 29 CFR 1910.134, Respiratory Protection

5.3 Nuclear Regulatory Commission, 10 CFR 20 Subpart H, Respiratory Protection

5.4 NUREG/CR-0041, Manual of Respirator y Protection

5.5 NP 4.2.32, Respiratory Protection Program

5.6 HP 4.7, Emergency Response with Respiratory Equipment

5.7 HPIP 4.56, Testing Supplied Air for Air-line Respiratory Equipment

5.8 PBF-4107a, Bubble Hood Air Supply Pressure Record

5.9 PBF-4231, Respirator Selection Checklist

5.10 PBF-4232, Respiratory Protection Equipment Inspection (Label)

5.11 PBF-4234, Respirator Issue Record

5.12 PBF-4236, Respiratory Protection Device Failure Report

6.0 BASES

B-1 CAP027696 (QCR 97-0069), Report Used to Verify Eligibility for Respirator Use/Issue Lists Some Personnel Without a Medical Status Review Within the Last Year

B-2 CAP014109 (CR 01-2050), Less Than Adequate Respirator Issuance

B-3 CAP031029, Vision Correction for Respiratory Equipment

B-4 CAP034622/CA032663/ PCR054284, Improvement to Respiratory Protection Program (Item #12)

B-5 CAP051358/PCR054274, Training Materials Not in Compliance with 10CFR20.1703(f)