

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM UNITS 2 AND 3

HPA-77 - DETERMINATION OF MPC HOURSPURPOSE:

This procedure provides the method of determining MPC hours for an RWP.

REFERENCES:

HPA-72
HPA-73
HPA-74
HPO/CO-3

APPARATUS:

None

PROCEDURE:

1. Obtain an air sample which is representative of the air being breathed during the job per HPO/CO-3.
2. Determine the gross β activity of the air sample per HPO/CO-3. If the gross β activity is $> 3N10 \mu\text{Ci/cc}$, an isotopic analysis or half life determination for air samples which have isotopes with half lives ≤ 2.0 hours (if half life > 2 hours, an isotopic analysis must be done) shall be performed per HPO/CO-3. Anytime a charcoal cartridge is used to detect iodine, the cartridge shall be analyzed isotopically. (This may be done using the Iodine 131 single channel analyzer.)
3. Using the isotopic analysis of the particulate filter (and charcoal cartridge if iodine determination is required) complete the MPC hours calculation sheet - Data Sheet HPA-77-1. This may be done by using the MPC program on the multichannel analyzer in the place of Data Sheet HPA-77-1.
4. If Noble gases or Isotopes with half lives ≤ 2.0 hours are detected, no MPC hour calculations are required on these isotopes.
5. If additional isotopes are identified (other than noble gases or isotopes with half lives ≤ 2.0 hours) which are not listed on Data Sheet HPA-77-1, add these isotopes to the data sheet and determine the MPC from 10CFR20.103 Appendix B, Table I, Column 1 (for air). Use the most restrictive MPC between the soluble and insoluble forms.

PROCEDURE: (continued)

6. Determine the MPC fraction, Concentration in Air (uCi/cc) MPC (uCi/cc), for each isotope identified. Sum up the MPC fraction for the particulates and iodines identified.
7. Determine the stay time required for 2 MPC hours for the type of Respiratory Protection being used. If this is an initial survey or if the type of Respiratory Protection is not known, calculate the stay time for 2 MPC hours for a standard mask (Ppt. filter or Iodine Cart.) and an air line mask. This calculation may be done by the MPC program on the multi channel analyzer in the place of Data Sheet HPA-77-1. If no mask is being used, the Respiratory Protection factor (RPF) for Iodines or particulates is 1.0.

$$\text{STAY TIME for 2 MPC Hours} = \frac{2.0 \text{ hours}}{(\sum \text{ of ppt. MPC fraction} \times \text{RPF ppt}) + (\sum \text{ of I}_2 \text{ MPC fraction} \times \text{RPF I}_2)}$$

RPF Ppt = Respiratory Protection Factors for Particulates
(see Data Sheet HPA-77-1)

RPF I₂ = Respiratory Protection Factors for Iodines (see
Data Sheet HPA-77-1)

8. The stay time calculation sheet (computer printout or Data Sheet HPA-77-1) shall be attached to the Gamma Scan for each RWP air analysis, if the air activity is $> 1.0 \text{ N9 uCi/cc}$ (Gross Beta or I¹³¹).
9. Work Sheet HPA-77-2 shall be completed within the next work day if all of the following apply:
 - a. Air activities are $> 1.0 \text{ N9 uCi/cc}$ (Gross Beta or I¹³¹).
 - b. Stay time for 2 MPC hours is less than 12 hours.
 - c. Someone worked more hours than the allowed staytime for 2 MPC hours, based upon respirator worn and qualification of individual.
10. Work Sheet HPA-77-2 will be completed using data from either HPA-77-1 or the computer printout. Data will be listed in the appropriate columns.
11. A technician (responsible for handling MPC hours) will check each person's respiratory record to determine if they are qualified to receive a protection factor for the equipment worn. A check mark should be placed in the appropriate column.
12. If the individual is qualified multiply the data in the column "MPC Factor (mask worn)" by the "number of hours in area" column. Post the resultant MPC hours in the work area column.
13. If the individual is not qualified multiply the data in the column "MPC Factor (no mask)" by the "number of hours in area" column. Post the resultant MPC hours in the work area column.

ANY JOB WHERE A PERSON RECEIVES OR COULD RECEIVE MORE THAN 40 MPC HOURS/DAY OR/SHIFT REQUIRES IMMEDIATE NOTIFICATION OF HP SUPERVISION.

14. If any individual has accumulated more than 2 MPC's complete a Dosimetry Sheet HPA-77-3 and deliver to the dosimetry office for adding to the computer system.

MPC Hours Calculation Sheet
Isotopic Analysis

$$\text{Stay time} = \frac{2.0 \text{ hrs}}{(\text{A}) \times (\text{RPF PPL}) + (\text{B}) \times (\text{RPF ILL})} = \frac{2.0}{(\quad) + (\quad)} = \underline{\hspace{2cm}}$$

$$\text{Air line string time for 2 MPC line} = \frac{2.0 \text{ hrs}}{((A)(0.001)) + ((B)(0.001))} = \underline{\hspace{2cm}} \text{ hrs}$$

IF STAYTIME < 12 hours MPC Hour Records must be kept, If > 12 hours no further records are required. Isotopes with half-lives ≤ 2.0 hrs do not need MPC calculations

