GENERIC EXPOSURE AND RELEASE SCENARIO **DRAFT**

USE OF PMN COMPONENT IN TONER USED IN PHOTOCOPIER

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Description

PMN is contained as a component of toner (black powder) in plastic cartridges. Adjust all toner quantities by the concentration of PMN in the toner. Workers remove seal on catridge and place it in the photocopier. During photocopying, the toner is applied to the paper and electrostatically transferred to image area of the paper. Assume that 75% of the toner is transferred to paper. Non-transferred toner falls into a collection bin (assume 25% of total volume). When cartridge is spent, worker removes spent cartridge and replace it with new one. The waste toner collection bin is emptied through a port (manually or automatic???) into a waste receptacle. Assume same worker performs both operations. The waste toner is disposed into a municipal landfill. The spent catridges are recycled back to the manufacturer or distributor. The paper containing toner may also go to landfill when it is discarded.

 # use sites and # of workers.

Assume that each catridge contains 1 kg of toner. Worst case, assume that toner is used in one photocopier per site, catridges changes weekly (52 times per year) and waste toner removed biweekly (26 times per year).

 # use sites=

$$\frac{\text{PMN prod. vol. (KG)}}{\text{year}} \times \frac{\text{kg toner}}{\text{? kg PMN}} \times \frac{\text{catridge}}{\text{1 kg toner}} \times \frac{\text{copier-year}}{\text{26 catridges}} \times \frac{\text{site}}{\text{1 copier}}$$

Example: If production volume is 1000 kg/yr and PMN is 1% concentration in toner, then # of use sites equal:

1000 / 0.01 / 26 = 3846 sites, (indicate thousands of sites)

If more than one copier per site, than number of sites will be less.

 # workers = # sites

Inhalation Exposure

Releases

Although a small quantity is recycled by reuse of the spent catridge, assume that all of the production volume (kg/yr) will be released to municipal landfills by disposal of the waste toner from