

The quantity of material destroyed could best be determined by weighing items (projectile-filled trays or bulk containers) immediately before and after passage through the metal parts furnace. The item to be weighed should be placed on a support containing an accurate load cell. The measured weight difference should be cross-checked against the value expected from the calculated content of the item. The number of items should be measured by mechanical or electronic item counters and visual observation at the same points as the weight is determined. (While current capability exists for counting the number of items, current weighing capability is only partial and approximate.)

Confirmation of actual agent destruction should rest on confirmation:

(a) that the conditions in the destruction step are sufficient to destroy the material completely and (b) there are no pathways for diversion. In addition, the waste materials should be subject to sampling and analysis on a random basis to ensure complete destruction.

For CAMDS the key parameters of the agent destruction step which should be measured are the temperature-time profile of the volatilization chamber, the temperature of the primary fume burner, and the rate of the air flow through the primary fume burner (i.e., the residence time of agent). Temperatures would be measured by thermocouples; flow rates by orifice plates. These instruments are already used for process monitoring. The absence of diversion pathways could be confirmed by conducting an engineering inspection of the facility before destruction operations begin, television and direct surveillance of key process areas, particularly during shut-down and maintenance periods, and periodic reinspection.

Data from each sensor, including television cameras, would be transmitted to a central monitoring station in the control room and recorded to provide a permanent record.

To ensure that metal parts, such as shell casings, could not be reused, they should be destroyed by punching, sawing, or crushing. Confirmation would easily be obtained by visual observation of the scrap metal parts emerging from the destruction step.

B. Injection-method Incineration at CAMDS

Figure 5 provides an outline of the verification procedures discussed below.

For this process the identity and purity of the material being destroyed should be confirmed by taking a sample close to the inlet of the liquid incinerator and analysing the sample with an on-line, dual-column gas chromatograph. (Such a system is not currently installed.)