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AC/35-D/165

NATO SECURITY COMMITTEE  
DESTRUCTION OF CLASSIFIED DOCUMENTS

Reference: Summary Record AC/35-R/18 Paragraph 5(1)

Note by the United Kingdom Delegation

1. There are five main methods of destroying documents.  
These are:

- (a) Burning
- (b) Pulverising
- (c) Shredding
- (d) Pulping
- (e) Chemicals.

Burning

2. This method of destruction can be split into two:

- (a) Simple Burning

This method consists of setting fire to a pile of documents. This process has been found to be slow and inefficient as documents at the centre of the fire remain undamaged for a long period. If the mass is turned to encourage burning, fragments of paper are carried away by the rising hot air and scattered over the surrounding area. Adverse climatic conditions would also seriously hamper and may altogether halt destruction. The rate of burning may be increased with the addition of petrol, or a chemical (see paragraph 9) etc., but this method of burning generally should only be used for small quantities of documents which could adequately be controlled until destruction is completed.

- (b) Burning in Incinerators

There are a large number of incinerators on the market. Destruction by burning in properly designed incinerators is speedier than the simple burning method described above as the incinerator itself creates a draught. It may also be aided by some form of simple air compressor which will increase the rate of burning. It has been found that a number of incinerators placed adjacent to each other speeds up the rate of burning by increasing the temperature of the incinerators. A recent experiment carried out showed

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that when three incinerators were sited adjacent to each other the centre incinerator burned 25% more paper than the other two on either side.

3. We have received information about an incinerator which has a capacity of about 400 pounds of paper an hour. This costs approximately £80. This very high rate of combustion is attained by intensive stoking which on this type of apparatus might have to be performed in an open yard, owing to the intense heat emitted. Fuel is required to light this type of furnace and to a certain extent the capacity per hour depends on the amount of extra fuel supplied. The incinerator is comparatively cheap, portable and can be made in quantity.

#### Pulverising

4. Most pulverising machines are adaptations of agricultural machinery and are based on the same principle as those for grinding oats, etc.

5. The paper which is ground by hammer is lead through an exhauster and the exhauster pipes and can be collected in sacks. At a rotation speed of about 2,200 revolutions per minute about 1½ tons of paper can be totally destroyed in an hour. At a speed of about 3,200 revolutions per minute the mill has a capacity of about three tons per hour. It costs approximately £1,300. Although the mill can grind clips, etc., it is preferable that these be removed first as there is some danger of the personnel being injured if this is not done.

#### Shredding

6. A number of shredding machines are on the market which cut paper into shreds varying from 1/32 to 1/16 of an inch. The majority of these machines can destroy approximately 100 pounds of paper per hour but such paper has to be fed in at the rate of two to three sheets at a time, all metal bits etc. previously removed. The machines which destroy about 100 pounds per hour are priced at about between £100 and £200. There are, however, other machines of a similar type that shred upwards to three tons of paper per eight hour day. These are priced up to £1,259. Generally speaking, we think that the smaller type of these machines are most suited to offices dealing with very sensitive documents and would certainly not be suitable for large scale destruction in any emergency.

#### Pulping

7. This method of destroying paper consists of a tank fitted with an agitator or disintegrating propeller driven at a speed of between 2,500 and 3,500 revolutions per minute. The paper to be destroyed is thrown into a vessel and the mass is then disintegrated in a matter of minutes. A 3 ft. diameter, 5 ft. high hydrapulper would require approximately 100 gallons of water per charge and would repulp some 40 pounds of paper in five minutes. It would require a 10 h.p. motor to drive this apparatus. This method of pulping is most effective but depends upon a good supply of water. The apparatus is not mobile.

8. A considerable quantity of the surplus documents and waste in the U.K. is destroyed at paper mills. The normal capacity of a paper mill being about sixteen tons per hour. The waste material is first disintegrated by mechanical beaters, after which it is transferred to vats containing acid. In an emergency the capacity could be increased to about 100 tons per hour. Electrical power is now used to drive the machinery involved but it can be operated on an auxiliary plant. Providing that documents can be evacuated to a pulping mill this method with its immense destruction capacity is well worth consideration.

Chemicals

9. Chemicals can be used either as a method of speeding up other methods of destruction or as a means of destroying documents. It has been found that potassium nitrate and similar compounds when sprinkled on papers being destroyed by burning can help considerably to increase the speed of burning.

10. Most acid methods of destruction need approximately two pounds of acid on every 1½ ounces of paper and unless the papers are agitated complete destruction takes a very considerable time.

COMPARATIVE TABLE

11. A comparative table showing the principal qualities and disadvantages of the four methods of destruction listed in paragraph 1 (a) - (d) is attached at Annex. "

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COMPARISON OF THE FOUR MAIN METHODS OF DESTROYING DOCUMENTS

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ANNEX to  
AC/35-D/165

	BURNING	SHREDDING	PULVERISING	FULPING
<u>AVERAGE CONSUMPTION</u>	400 lbs. per hour.	100 lbs. per hour to 840 lbs. per hour.	3 tons per hour.	16 tons per hour. (Max. 100 tons per hour).
<u>ADVANTAGES</u>	Little residue to dispose of. Requires simple equipment. Will consume nearly all types of classified waste with safety. Fairly portable.	Comparatively clean to operate and can therefore be located in offices handling classified material. Effectively destroys waste and allows the shredded material to be sold as clean paper.	Complete destruction of waste. Machinery readily available in an agricultural country.	Complete destruction of large amounts of waste in a matter of minutes. Waste can be thrown in in bulk.
<u>DIS-ADVANTAGES</u>	Is usually situated away from offices. Requires continued turning. Any large destruction operation would create considerable smoke and may require to be conducted outside in view of intense heat.	Comparatively slow to operate as all metal pieces must be removed before shredding. Normally machines require paper to be fed in two or three sheets at a time.	Whole files etc. cannot be fed in. Metal bits have to be removed.	Apparatus is not mobile and depends upon a good supply of water.
<u>COST OF MOST EFFECTIVE DEVICE KNOWN</u>	Approximately £80.	£100 - £200 (small sizes up to 100 lbs.). £1,259 for large sizes.	Approximately £1,300.	Existing Paper Mills.

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