

## **5 FAH-4 H-600 MICROGRAPHIC RECORDS**

### **5 FAH-4 H-610 INFORMATION ABOUT MICROGRAPHICS**

*(TL:RMH-1; 10-30-1995)*

#### **5 FAH-4 H-611 GENERAL**

*(TL:RMH-1; 10-30-1995)*

- a. Micrographics is the process of photographically producing a physically reduced exact-image copy of written or graphic records. These records may then be enlarged for reading and reproduction. The term micrographics is synonymous with a number of other records terms: microrecords, microfilm/microfiche records, and micro-images.
- b. According to the GSA publication, Applying Technology to Record Systems, microfilm is a delicate medium that requires exacting standards and handling. However, we know what those standards and handling practices are. In some ways, because microfilm is more delicate, it is safer because we are aware of, and compensate for, its frailties
- c. Part 1230 of Title 36 of the Code of Federal Regulations establishes standards for filming permanent records and for records with a retention period of over 10 years.
- d. The purpose of this chapter is to provide information on the technology and standards involved in making micrographics a successful solution to record keeping problems. 5 FAH-4 H-611 Exhibit H-611 describes the ten steps involved in the micrographics process.

#### **5 FAH-4 H-612 MICROGRAPHIC POLICY AND RESPONSIBILITIES**

*(TL:RMH-1; 10-30-1995)*

A micrographics study or project concerned with the management,

maintenance or disposition of records may be undertaken by a office or a post with the approval of the Records Management Branch, A/IM/IS/OIS/RA/RD. 5 FAM 450 defines the policies and responsibilities for micrographics projects.

## **5 FAH-4 H-613 LEGAL STATUS OF MICRORECORDS**

*(TL:RMH-1; 10-30-1995)*

Records converted to microfilm are considered legal documents in a court of law in the United States as long as the office maintaining the records can verify that the records meet the specifications for creation or conversion as established by the National Archives and Records Administration and the National Institute of Standards. The following three sections elaborate on this point.

### **5 FAH-4 H-613.1 In the United States**

*(TL:RMH-1; 10-30-1995)*

The U.S. Code (Section 1732 of Title 28) establishes the legality and admissibility of microfilmed records for legal purposes in the U.S. The Code states that copies of paper records“....reproduced by any photographic, photostatic, microfilm, micro-card, miniature photographic, or other process which accurately reproduces or forms a durable medium for so reproducing the original...” may be used in legal proceedings.

### **5 FAH-4 H-613.2 In Foreign Countries**

*(TL:RMH-1; 10-30-1995)*

- a. The use of microfilm copies of records in legal proceedings is not acceptable in some foreign countries. Although the Department can certify a microfilm copy as its official record, some countries accept only originals. Therefore, if microfilm copies are not acceptable in a country (or there is the slightest doubt) posts are to review originals for potential future legal use—if post plans to destroy the originals after filming.
- b. Posts may also wish to consider contacting the Office of the Legal Advisor prior to filming such records.

### **5 FAH-4 H-613.3 Department Quality Standards**

## **For Legality**

*(TL:RMH-1; 10-30-1995)*

To see that records on microfilm will be acceptable in a court, the Department requires that filming be done in accordance with the National Archive's standards defined in CFR Part 1230, Title 36.

## **5 FAH-4 H-614 THROUGH H-619 UNASSIGNED**

## **5 FAH-4 H-611 EXHIBIT H-611 TEN STEPS IN THE MICROGRAPHICS PROCESS**

### **STEP 1—DECIDING WHEN RECORDS ARE TO BE PUT ON MICROFILM**

The major reasons for deciding to microfilm records are discussed in the following paragraphs:

#### **a. Is There a Need To Improve Accessibility To Records?**

Where large record collections are located in areas remote from users, time is lost getting the records to the users. Multiple requests for the same document are another problem. Conversion to a microrecords system allows for inexpensive duplicate sets to be maintained in the user's work area. When more than one request for the same record is received the film can be used to prepare an inexpensive duplicate.

Not only can large collections of information be stored more conveniently, but they can be retrieved faster by using microrecords indexing and retrieval techniques. This is particularly true for situations requiring fast and accurate responses involving random searching of individual items.

#### **b. Is There a Need to Reduce Costs?**

The costs for maintaining voluminous quantities of paper records include the following:

- obtaining filing equipment, e.g., cabinets and safes,
- personnel needed to file, maintain, and retrieve records,
- floor space for files, and
- supplies to protect and organize records, e.g., folders and labels.

The microfilming of records can dramatically reduce these costs as well as improve the time necessary to retrieve and copy needed records. Where high costs are involved in a large volume paper reproduction operation, as in published reports or in distribution, film can be used. Film reduces

the cost of reproduction, distribution, filing, file equipment and office space.

**c. Is There a Need for More Floor Space?**

Sometimes adequate storage space is not available to house paper records or office space is very limited. Microrecords require only two percent of the space required to store paper records. A microrecords system will provide for better use of office space.

**d. Are There Irregular Size Documents in the File(s)?**

Some records systems include many irregular size documents such as blueprints. The benefits of converting such documents to microfilm include the following:

- elimination of the need for special filing equipment,
- simplification of filing and reference procedures,
- prevention of damage to documents through folding, and
- reproduction from a reduced size document.

It is cheaper and easier to duplicate, revise and distribute large or irregular documents from microfilm.

**e. Is There a Need To Preserve The Records?**

Information on paper can be stored for some period of time under specific environmental conditions. Records of permanent reference value are subject to damage and deterioration if not properly preserved. Conversion to microfilm is one method of preserving records of historical value. The low cost of producing duplicate sets of microrecords also allows for the maintenance of a back-up set at an offsite facility. Documents that are lost can be cheaply and easily replaced.

**f. Is There a Need for a Better Reference System?**

The use of a microrecords system can save the time and effort associated with the retrieving, searching, chargeout and return of original file folders in a manual file system. Files or documents can be located quickly in a microrecords system and a copy can be given to requesters to read or keep.

Filming all documents, such as correspondence that pass through an office, can save the effort involved in manually logging in incoming documents and provide a file for later verification.

### **g. Is There a Need for Better Security?**

Today, the microfiche equivalent of two file cabinets of paper records can be destroyed in 2 minutes with the chemical methylene chloride. This enhances the security of the information by reducing its destruction time at a post. Two cabinets of paper records may take several hours to destroy—if the destruction equipment stays operational.

### **h. Reasons for Not Microfilming**

It is also important to consider reasons for not microfilming records such as:

#### **1. Incomplete Records**

Documents that are in an incomplete preparation or processing stage are seldom microfilmed because the fragmentary information of office transactions is of little value.

#### **2. Inactive Records**

Paper records that must be kept for a period of time but which are rarely referred to - can be stored at a Federal Records Center (for periods from 10 to 70 years) for less money than it would take to film the records.

#### **3. Readability**

Some print on paper documents is too small to be legible when microfilmed.

## **STEP 2—SELECTING THE FILM TO BE USED**

This section addresses the heart of the microfilm system, which is the film. It covers the types, sizes, and formats of film and three miscellaneous subjects related to film. A chart showing common use film sizes, usages, formats and reduction ratios is found after paragraph d.

### **a. Selecting the Needed Film Type**

There are basically three different types of film used:

- Diazo film is the most widely used film for making duplicate copies.
- Silver halide (silver gelatin) film is most commonly used to produce the master copy. Only silver halide film is used to archive permanent records. It has a life expectancy of approximately 70

years, and

- Vesicular film is used in large volume computer output microfilm (COM) systems. A negative master produces a positive duplicate and vice versa. The Department uses this film type for visa lookout and personnel records.

In addition to the three film types discussed above, there are two types of unconventional films that are found in a number of applications: dry silver and updateable. Dry silver has the chemicals, needed for developing, embedded in the film. Heat activates the developing process; no wet processing is required. Updateable films allow for the addition of images after exposure. They are used in special cameras that allow the addition of images. There are two varieties: electrostatic and photoplastic. Electrostatic film has a photoconductive layer coated on a polyester base. The film is sensitized by an electrostatic charge and an image is created with toner. With photoplastic film the images are formed by a pattern of electrostatic charges. Then the image is fixed by heating and deforming the film then cooling it into the new shape, complete with images. With photoplastic film, images can be erased and replaced.

To better understand terms like emulsion and base, an understanding of the structure of film is necessary. A typical piece of film consists of the following layers:

1. Overcoat
2. Emulsion (which reacts to light, heat, and chemicals to form the image)
3. Subcoat
4. Base (plastic sheet)
5. Subcoat
6. Back (to prevent curling).

## **b. Selecting the Size of Film Needed**

Film comes in the following sizes:

1. Roll Film
  - (a) 8mm—is rarely used and usually only in cassettes.
  - (b) 16mm—microfilm rolls are best suited for files that are serially arranged (by date, name, or number) and require

little updating or interfiling. 16mm is used to film documents up to "12 x 18".

- (c) 35mm—microfilm is used where a low reduction ratio is desired. 35mm film is processed and stored according to archival standards. Since drawings and newspapers are on large sheets of paper, a low reduction ratio (as 24:1) is used on 35mm to preserve good image quality.
- (d) 70mm—microfilm has rare scientific use.
- (e) 105mm—microfilm is used where maximum quality is required, as in engineering drawings. 105mm microfilm enlargements are good enough to be microfilmed and used to make reprints. 105mm film is also used to produce microfiche.

## 2. Strip Film

Microfilm also comes in strips of film consisting of several frames. These strips may either be placed inside a microfilm jacket or they may stick onto the surface of a plastic sheet. 16mm and 35mm are the most common sizes used.

## 3. Ultrastrip Film

Ultrastrips are like microfiche. Ultrastrips can hold 2,000 document pages on a single strip of microfilm.

## 4. Sheet Film

Microfilm comes in sheets of 105mm film cut in lengths of 148.75mm (or 4" x 6"). This is commonly known as microfiche (fiche is a French word meaning - small card).

The number of pages that a sheet of microfiche can hold will depend upon the size of the documents being filmed.

Microfiche groups common records onto one sheet to create a unitized record. For example, an entire file can be kept on one sheet. Such records are: easier to file and retrieve, more compact to store, and economical to reproduce.

Some microfiche can be updated by melting off an old frame and adding on a new frame image. The revised microfiche is then reproduced. There are also systems that permit updating by exposing and developing individual frames on the original



microfiche. Updateable microfiche, however, may not be used for permanent records.

#### 5. Frame Film

Microfilm also comes in individual frames. A single frame is mounted on an aperture card. 16mm and 35mm film are the most common sizes used.

### **c. Selecting the Film Format Needed for the System**

The following film formats exist:

#### 1. Microfilm Aperture Cards

An aperture card is a computer punch card that has an individual frame of microfilm on it. These cards are designed for computer use. Aperture cards are ideal for short documents on a particular subject, such as one page biography or an architectural drawing. However, extra care must be taken to prevent damage to the microfilm frame.

A code is punched on the card to allow the computer to sort the cards. Information is also printed on the card to allow easy identification and retrieval.

#### 2. Microfilm Cartridges

Cartridges are used to store and protect microfilm and to be used with machines like reader printers.

#### 3. Microfilm Cassettes

Cassettes are used to store and protect microfilm, usually 8 mm.

#### 4. Microfilm Jackets

Strips of microfilm are inserted into the horizontal pockets of a transparent plastic sheet (jacket). There are also strips of film that can stick onto a sheet of plastic. A microfiche jacket consists of an open-ended envelope, and it groups records together onto microfilm strips or microfiche sheets. A jacket also makes file updating and retrieval easier because strips of film are simply removed or inserted. Jackets are less used because they are labor intensive to produce. Jackets come in many sizes and varieties. The most common is the 4" x 6" jacket with 4 or 5 sleeves to insert strips of microfilm. Jackets are more suitable for updating than microfiche because new strips can be easily added to a jacket..

## 5. Microfilm Reels and Magazines

Roll microfilm is kept on 8mm, 16mm, 35mm, 70mm, and 105mm wide film reels.

## 6. Microfilm or Microfiche from Computers

Computer Output Microfilm (COM) is a process that takes stored information from a computer and puts it on either microfilm or microfiche.

Computer Input Microfilm (CIM) is a process that takes stored information (alphanumeric characters, charts, drawings, graphs, pictures, and plans) from microfilm and puts it into a computer. The information can then be manipulated and updated.

### **d. Selecting the Contrast, Polarity, and Reduction Ratio**

The following is a discussion about three miscellaneous subjects related to film:

#### 1. Contrast

Most microfilm is high contrast film, that is: light areas appear very light and dark areas appear very dark. High contrast film does not have gray areas in between the light and dark areas. This type film is ideal for textual records and drawings. If gray tones are desired, for drawings, pictures, etc., special film and processing will be needed.

#### 2. Polarity

Polarity refers to the color of the text or image - it is either black or white. There are two polarities:

- (a) Negative polarity (negative film, or negative image) is black print/images on a white background. Most microfilm has a negative polarity because reader printers use negative film to make positive copies desired by most users.
- (b) Positive polarity (positive film or image) is white print/images on a black background. It also reduces the light glare on the screens of microfilm readers.

#### 3. Reduction Ratios

The term reduction ratio refers to the size of the original document in comparison to the microrecord's image size. For example, this

ratio is written 10:1 (10 to 1) or 10x. Here, the reduced image on the microfilm is one-tenth the document's original size.

Low reduction ratios (as 14x to 18x) are essential for archiving newspapers or engineering drawings in order to preserve good image quality. The lower the reduction ratio the better the reproduced copy will be. Common reduction ratios are 24x for paper records and 48x for COM.

### **Common Use Film Sizes, Usages Formats, and Reduction Ratios**

<b>Film Width</b>	<b>Uses</b>	<b>Formats</b>	<b>Reduction Ratios</b>
16mm	Small documents	Roll Film, Jackets	24x 27x 29x 30x 40x
35mm	Newspapers	Aperture Cards, Roll Film, Jackets	16x 24x 30x
105mm	<ul style="list-style-type: none"> <li>— Microfiche of business documents.</li> <li>— Computer - output microfiche and film.</li> <li>— Micropublishing.</li> <li>— Very large engineering drawings and maps.</li> <li>— Documents that cannot have a high reduction ratio.</li> </ul>	Microfilm, Ultrafiche, Roll Film	24x 42x 48x 150x

## **STEP 3—SELECTING THE TYPE OF INDEX SYSTEM**

An index is a valuable tool in locating records on microfilm or microfiche. Indexes may be either:

- produced by a computer,
- in a printed book,
- on microfilm, or
- on microfiche.

### **a. Index Systems for Microfilm Only**

Accession numbers, bars, codes, or lines may be placed on the microfilm to serve as an indexing system to locate a desired record's frame on the reel. These systems work best with automated retrieval equipment.

1. Code-Line Index

A code, line, or bar may be placed between each frame on the microfilm. A code is assigned to each record on the microfilm. This type of index is being less used today.

2. Computer Index

Documents stored on microfilm are indexed with terms or codes that are entered into a computer. To retrieve the documents the computer searches for these terms or codes. It then locates the document's frame number. This is referred to as Computer Access Microfilm (CAM).

3. Document-Mark Index

A mark bar (blip) is filmed adjacent to each frame of the document. A document is retrieved by a photoelectric counting device located in the reader. The frame number is entered with a keyboard. The microfilm automatically stops when it reaches the frame number.

4. Flash Card Index

A flash card (target) can be used on microfilm to search for a specific frame of a record. Targets are used for high speed identification of a file or a record break (frame location). Such breaks are arranged in either alphabetical or numerical order after a specific number of flashes. This type of index is widely used today.

5. Odometer Index

An odometer is a device that measures the length of the microfilm as it travels through the reader.

Indexes can be created to locate individual documents. An index may either be created during filming by using a camera with a built-in odometer. Or, an index can be created manually after the film is developed. First, the film is placed in a reader. Then the odometer value is recorded at various points on the film. This type of index is being used less today.

6. Photo-Optical Code Index

An optical code pattern is placed on the side of each frame of the document. This frame location code is entered with a keyboard. The document is retrieved by electronically scanning for a code pattern. The microfilm automatically stops when it reaches the

frame code requested. This type of index is being used less today.

#### 7. Sequential Number Index

A number, in sequential order, is placed on each document. The number is visible on the microfilm reader's screen. A second index is needed to identify the number assigned to the document.

### **b. Index Systems for Microfiche Only**

When many documents are located on the one microfiche, an index is to be included in either the lower right corner of one of the sheets or in a separate index book.

#### 1. Bar Code

This is the familiar multi-line pattern found on items purchased in stores. The bar-code is read electronically. It is placed on the microfiche header.

#### 2. Batch Index

Various techniques are used to identify batches of microfiche: notch codes may be cut into the top of the bottom edge of the microfiche or tabs are attached to the upper edge and given a name or number.

#### 3. Header Index

The most common method to index microfiche is by placing an eye-readable header (title) at the top of each sheet of microfiche to identify the information contained on that sheet and to facilitate retrieval. If there is more than one sheet on the subject a sequence number is also added. Headers may be color coded to aid filing and retrieving. Chronological and subject index books can be used.

#### 4. Magnetic Code Index

Another indexing technique uses magnetic codes by which each microfiche sheet is separated from the next by a magnetic divider.

### **c. Index Systems for Both Microfilm and Microfiche**

#### 1. Coordinates Index

This type of index uses several terms (coordinates) to index a document. To retrieve the document a search is made to locate

documents with the terms selected.

2. List Index

Special lists can be made from the document's subjects by using: addresses, keywords, numbers, originators, title, etc. The generated lists access documents by relating these items to the document's frame number.

3. Date, Name, or Number Index

The most common form of indexing is by name, number, or date. Documents are put into an alphabetical, chronological, or numerical sequence on the microfilm or microfiche.

4. Subject Index

Information can be indexed by the subject content of a document. Classification codes are assigned to subject categories. These indexing codes are the keys to finding a document on microfilm or microfiche.

## **STEP 4—SELECTING THE NEEDED MICROGRAPHIC EQUIPMENT**

### **a. Equipment**

1. Cameras—There are two types of cameras:
  - (a) Rotary (or flow) cameras are used for high speed filming of records.
  - (b) Planetary (or microfiche) cameras are used for special applications such as books, engineering drawings, better resolution, large size documents, or newspapers.
2. Computer Terminals—to edit film or for computer assisted retrieval of documents.
3. Densitometers—to allow for adequate image contrast when viewed in readers or when duplicated.
4. Film Duplicators—to make extra copies of the film.
5. Film Processors—to develop the film.
6. Readers or Reader/Printers

7. Other Equipment & Accessories, as appropriate—Aperture card mounters, Cartridge/cassette loaders, Cutters (for microfiche), exposure controls, Film cleaning machines, Film rewinders, Gloves, Inserters and reader/fillers (for microfiche jackets), microscopes (inspection aid), Resolution charts (to measure the sharpness of the film's image), Splicers, and Storage cabinets.
8. Supplies—Chemicals, film, paper, etc.

## **b. Ordering Equipment**

Micrographic equipment and supplies are on GSA's Federal Supply Schedule Program and are ordered through the GSA Supply Catalog.

This catalog also lists Contractor (vendors) Publications which give illustrations and descriptions of micrographic equipment and supplies. These publications are listed: GSA Supply Catalog (Chapter)—Federal Supply Schedules Program Part II—Listing of Schedules Program Contract Publications Section A—National Federal Supply Schedules:

FSC Class:

6720—Microphotographic Equipment and Supplies

6730—Microphotographic Equipment

6750—Microphotographic Supplies

To order GSA publications, call (817) 334-5215.

To obtain more information on GSA's Supply Schedules, call GSA Customer Service (202)755-0320.

Please contact OIS/RA/RD if you have any questions concerning the ordering of micrographic equipment.

NOTE: The questions in STEPS 5 and 6 are meant to ensure that adequate thought is given to all aspects of the new microrecords system. The only documentation OIS/RA/RD requires, however, is the completion of Form DS-1751.

## **STEP 5—CONDUCT A SURVEY OF THE PRESENT RECORDS SYSTEM**

A thorough survey of the existing records system is necessary before considering microrecords as the solution to space and storage problems or protection of records. A detailed flow chart of the whole records system is a

good first step towards understanding the present system. Focus on deficiencies in the system such as frequent misfiles, lost records, insufficient retrieval access. The flow chart will identify the life cycle of the records, i.e., creation, storage, filing, retrieval, and retirement. Answer the following questions also as part of the survey.

NOTE: Also review Section "A" on Form DS-1751, before starting, to see what information it requires.

**a. Describe the Records**

1. What disposition schedules apply to these records? Consult with OIS/RA/RD if not known.
2. What type of records are they, e.g., books, computer data, documents, case files, chronological files, personnel files, reference files, subject files, etc.?
3. What is the subject matter of the records?
4. What are their security classifications?
5. What are the physical characteristics of the record, (i.e., age, color, condition, media, size)?
6. Describe the indexing method used (name, number, subject, etc.) and how the records are retrieved.
7. What is the time period the records cover?
8. What is the volume?
9. Is new record material being added to the files?
10. How many and what type file cabinets or shelves are being used to store the records?

**b. Identify the Users and the Retrieval Frequency**

1. Who uses the records (e.g., agencies, offices, public)?
2. How many people use the records per week/month?
3. How many use the records at any one time?
4. What are the users' physical proximity to the files?
5. How many searches are performed per week/month?



6. How many hours are required to perform these searches?

**c. Determine the New Microrecord Program's Operational Requirements**

1. How many people will be needed to operate the new microrecord program?
2. How many square feet of floor space will be required?
3. What equipment and supplies will be needed?
4. What will be the method and amount of reproduction in the new system? (If assistance is needed, please contact OIS/RA/RD).

**STEP 6—DESIGN THE NEW MICRORECORDS SYSTEMS**

A quality microrecords system does not consist of microfilming documents and then reading them in a microfilm reader. It will involve a lot of work over the entire life of the program. A system often fails because quality assurance is not maintained.

Build quality into the system - consider the users' needs; get expert advice on microfilm and equipment; inspect operations daily; and set up a personnel training program.

Microfilmed records are replacements for paper records, and therefore are to be filed in the same manner as the paper records were filed, either by TAGS/Terms or in alphabetical or chronological order. Records will be kept in the same manner as they were kept when in paper form, that is, either by calendar or fiscal year date.

A thorough analysis of the data collected indicates areas where the present system is deficient (equipment, materials, methods, procedures, etc.). If a microrecord system appears to offer a solution, then detailed information is needed for a cost and benefit analysis.

Using the information collected, review the following sections before starting to design the new microrecords system.

(NOTE: Also review Section "B" on Form DS-1751, before starting, to see what information it requires.)

**a. Describe the Filming Operation**

1. Where will the records be filmed, on site where the records are located or if off site?

2. At what point in the operation will filming take place (initial, receipt, during processing, or when processing is completed)?
3. Will the indexing be done before or after filming?
4. Will updating be required? How and when will it be done?
5. Are there things which can interfere with the film's image quality, i.e., air movement (doors, fans, windows), dust (smoke), heat (heaters), light sources (flashing light), moisture, power surges, vibrations (floor, unstable table for camera), etc.?

#### **b. Describe the Characteristics of the Film**

The physical attributes of various types of film must also be considered:

1. Microfilm rolls are particularly suited for large collections of single documents from two or three pages in length. This is especially true where a separate indexing system is used, 16mm is the most commonly used film. It comes in cartridges, cassettes, or reels. If higher image quality is required 35mm film is used.
2. Microfiche is used when documents are lengthy such as technical reports (say 20 pages or more). It is economical when multiple copies of a document are sent to many users.
3. Microfiche is also easy to file and retrieve. Reader printers are inexpensive.
4. Identify the characteristics of the film:
  - (a) What is the specific type of film to be used?
  - (b) Is this film available?
  - (c) Is the film easy to handle?
  - (d) Will the film preserve file integrity?

#### **c. Describe the Reference Requirements**

1. In what form do the users want the information (i.e., in hardcopy, on microfilm, on microfiche, or system data printouts)?
2. How many locations are needed for user access to the system?
3. Should these locations be centralized or decentralized?

#### **d. Compare the Proposed System to Other Microrecord Systems**

Thought must be given to other existing systems. These systems may economically service the needs of an office.

#### **e. Prepare a Cost/Benefits Analysis**

1. Careful thought must be given to the projected cost savings in the proposed system on equipment, space, and retrieval operations. A cost/benefits analysis of the current system and the proposed system must therefore be performed for two important reasons:
  - (a) To assist OIS/RA/RD in determining whether or not to approve the proposed microrecords system
  - (b) Because paper records can be stored at a Federal records Center (for periods from 10 to 70 years) for less money than it would take to film the records.
2. The Cost/Benefits Analysis will consider:
  - (a) The resources already available in the Department - such as the central microfilming and microfiche operations in A/IM/IS/OIS.
  - (b) The type of microrecords system desired.
  - (c) The objectives of the proposed system.

#### **f. Compare the Current System to the Proposed System in Areas Where a Dollar Value can be Placed**

1. Distribution—What are the costs involved in duplicating and disseminating documents (include cost of labor, materials and mail)?
2. Equipment—What are the depreciation, maintenance, purchase and rental costs?
3. Personnel—What is the total in staff hour costs required to operate the present system and the proposed system (use the hourly wage for each type of work being performed)?
4. Space—What is the total square footage cost required for the present system and the proposed system to store and retrieve documents?
5. Supplies—What is the cost for all cartridges, film, film processing,

projection lamps, reader printer, chemicals, paper, etc.?

6. Training—What will it cost to train operators and users on the proposed system?

**g. Compare the Current System to the Proposed System Where a Dollar Value cannot be Placed**

The following factors may constitute convincing reasons for switching to the new system:

1. What are the major obstacles in retrieving the information from the present system?
2. How easy is it to make changes in the present system?
3. Does it take a long time to make the information available to users?
4. Is the date of the information, being accessed, very old?
5. What is the integrity of the file system (misfiles, file completeness)?
6. Are the staff's abilities to service multiple demands limited?
7. Is there a security problem with the records?

**h. Disposition of Film**

Decide on one single disposition time period, to destroy or retire the records being put on the microfilm or microfiche. If there are several different retention periods and/or destruction periods, use the longest retention period.

**STEP 7—COMPLETE A "MICROFILM PROJECT PROPOSAL" FORM**

If it is determined that a microrecords system is in order then prepare a DS-1751, Microfilm Project Proposal Form, based on the information collected. Copies of this form can be obtained from OIS/RA/RD. A sample Form DS-1751 is found after paragraph d.

- a. Send the completed form to OIS/RA/RD for both permanent and temporary records.
- b. A duplicate copy (diaz or vesicular film) must be made of each master copy (silver halide film) for reference purposes.

(NOTE: Each sheet of microfiche and every reel of microfilm must show the highest classified document on it, (e.g., "This reel contains Confidential material. Safeguard. Warning Notice: Sensitive National Security Information Involved.")

- c. The master microfilm or microfiche shall not be used for reference purposes (36 CFR 1230.24) and shall be properly stored (36 CFR 1230.20).
- d. The exact location of both the master and the duplicate sets of film must be indicated on Form DS-1751. Forward the form to the Records Management Branch, Information Management (IM/OIS/RA/RD).

<b>DEPARTMENT OF STATE</b>		<b>TO:</b> A/IM/IS/OIS/RA/RD		
<b>MICROFILM PROJECT PROPOSAL</b>		<b>FROM:</b> CA/VO		
<b>A. CURRENT SYSTEM</b>				
<b>1. DESCRIPTION OF FILE/DOCUMENTS</b> Reports on visas issued and refused		<b>2. SECURITY CLASSIFICATION</b> Unclassified		
<b>3. RETRIEVAL</b> <b>a. How is material indexed?</b> TAGS/Terms System	<b>b. Method of Searching</b> By personnel name	<b>c. Number of Searches per mo.</b> 300		
<b>4. UPDATE</b> Files are: <input type="checkbox"/> Closed <input type="checkbox"/> Open (material added continuously)	<b>5. STORAGE CONTAINERS</b> a. Kind of Records Equipment 5-drawer file cabinet b. Size - Legal      c. No. - 4	<b>6. DISPOSITION SCHEDULE</b> Item No. 140006 Destroy when 10 years old		
<b>7. PERSONNEL</b> (No. & Grade) 12    GS-7 to 12	<b>8. FLOOR SPACE</b> (Sq. Ft.) 1,620	<b>9. SUPPLY REQUIREMENTS</b> Bond paper		
<b>B. PROPOSED SYSTEM</b>				
<b>1. BRIEF NARRATIVE DESCRIPTION</b> Records will be filmed in CA/VO, upon receipt, on roll film to reduce a large volume of records. Three duplicates will be required to service high reference demands.				
<b>2. INDEXING</b> (Describe) Indexing will be done before filming. No updating will be required.		<b>3. NUMBER OF SEARCHES PER MO.</b> 300		
<b>4. MICROFILM</b> a. Type - Microfiche b. Size - 16mm c. Reduction Ratio - 24:1	<b>5. STORAGE CONTAINERS</b> a. Kind of Records Equipment - Roll film file cabinets b. Size - 10 drawers    c. No. - 4	<b>6. NO. MICROFILM DUPLICATES</b> 3		
<b>7. PERSONNEL</b> (No. & Grade) 6    GS-7 to 12	<b>8. FLOOR SPACE</b> (Sq. Ft.) 810	<b>9. SUPPLY REQUIREMENTS</b> 16mm SiIver Halide & Diazo film		
<b>10. MICROFILM EQUIPMENT</b>				
	Manufacturers Model	No. of Units	Unit Cost	Maintenance Cost
a. Reader	None	—	—	—
b. Reader/printer	Kodak, IMX-150	1	\$10,500.00	\$1,500.00
c. Cameras	Kodak, RV-3	1	\$23,000.00	\$1,200.00
d. Duplicators	Kodak, Prostar	1	\$11,000.00	\$1,000.00
e. Other	Kodak	1	150.00	N/A
<b>15. TOTAL COST</b> (Lease and Purchase)		Purchase: \$44,650.00 Lease: N/A TOTAL = \$44,650.00		

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**C. IMPLEMENTATION**

**1. MANHOURS REQUIRED FOR DOCUMENT PREPARATION**

(Include destapling, purging, repair of damaged documents, etc.)

3,840

**2. ONE TIME CONVERSION COSTS**

- a. Personnel - \$141,000.00
- b. Space - N/A
- c. Equipment - \$44,650.00

**D. JUSTIFICATION**

(Include cost analysis, advantages vs. disadvantages of microfilm over present system)  
**COSTS**

	Current System	Proposed System
Distribution	\$ 10,000.00	\$ 9,000.00
Labor		
Mail		
Materials		
Equipment	\$ 1,000.00	\$ 50,000.00
Depreciation		(5 years @ 20%)
Maintenance		
Purchase		
Personnel, Staff hr. cost	\$ 282,000.00	\$ 141,000.00
Space, Square footage cost	\$ 162,000.00	\$ 81,000.00
Supplies	\$ 1,000.00	\$ 4,000.00
Training	\$ 1,500.00	\$ 3,000.00
GRAND TOTAL	\$ 457,000.00	\$ 288,000.00
PROJECTED ANNUAL SAVINGS	\$ 169,500.00	

DISADVANTAGES OF CURRENT SYSTEM

Our decentralized file is an obstacle to retrieving records in a timely manner. It takes too many man-hours to make information available to users because files are dispersed and it is too difficult to verify that up-dates have been included. Misfiles are common. There are not enough people to manage the paper records.

ADVANTAGES/BENEFITS OF PROPOSED SYSTEM

A microrecords system will: increase accessibility to records; reduce costs, floor space, and manpower needs; provide a better reference service; and preserve file integrity. A centralized microrecords program will be a better method of management and will improve the quality of service to the public.

**PROJECT SUBMITTED BY**

Name Phil M. Microfilmus  
Title Chief, Research Branch

**APPROVED BY**

Mary M Money                      7/18/95  
Executive Director                Date

## **STEP 8—OIS/RA/RD SERVICE**

The approval of OIS/RA/RD is required for all microrecords programs in both the Department and at Foreign Service Posts, before proceeding to film the records ( 5 FAM 461 ). This is necessary in order to see that the Department is in compliance with NARA regulations and laws dealing with records. OIS/RA/RD is to review the final proposal before implementation.

When the project is approved, the Department's Records Management Staff will work closely with the office. OIS/RA/RD will create a disposition schedule to dispose of the paper records after they have been filmed. OIS/RA/RD will also see that the new system is in compliance with NARA microrecords standards for both permanent and temporary records stored for long periods of time.

## **STEP 9—HOW TO DISPOSE OF MICROFILM AND MICROFICHE**

### **a. Disposition of Microfilm Records**

The disposition of microfilm records shall be carried out in the same manner prescribed for other types of records (such as paper) in accordance with the NARA approved records control schedules:

Offices are to be cognizant of the fact that when filming is done of non-telegraphic records, the paper is most often destroyed. Therefore, the microfilm records are the official records for the Department of State.

### **b. In the Department**

Follow the approved Disposition Schedule for the particular micrographic records. If the Disposition Schedule says to "Destroy" the records, then:

Classified microfilm and microfiche is to be destroyed as would any classified paper files, except they are not to be shredded because it does not effectively destroy the small images on the film.

Unclassified microfilm or microfiche may be disposed of through normal waste disposal methods.

### **c. At Post—Normal Disposition**

Follow the approved Disposition Schedule for the particular micrographic records. If the schedule says to "destroy" the records, then:

1. Classified microfilm and microfiche are to be returned to the



Department (OIS/RA/RD) for destruction.

2. Sensitive but Unclassified information is to be returned to the Department (OIS/RA/RD) for destruction.
3. Other Unclassified microfilm or microfiche may be disposed of through regular trash collection, if there are no local security concerns.

#### **d. At Post—EMERGENCY DESTRUCTION**

In emergencies, classified and sensitive but unclassified information, contained on either microfilm or microfiche, is to be destroyed, as follows:

Shredding of either microfilm or microfiche is not acceptable - because at this time, it does not effectively destroy the small images on the film.

The chemical methylene chloride (for diazo microfiche) or burning (for vesicular microfiche or microfilm) are the only two acceptable destruction methods for microfilm or microfiche.

1. Chemical

Posts which have used diazo type film (i.e., with telegrams) are to use the methylene chloride. Methylene chloride is the only chemical approved for the emergency destruction of the diazo type of film.

Methylene chloride completely destroys a tub of microfiche in less than two minutes. Each sheet of microfiche must be in a paper envelope. These envelopes stop the sheets from sticking together, which could prevent the image from being removed.

2. Thermal

All other types of microfilm and microfiche (as Silver Halide or Vesicular films) are to be burned in an incinerator. CAUTION: Burning too much film at one time will either create intense heat, toxic fumes, or not effectively burn.

### **STEP 10—ADDITIONAL MICROGRAPHIC INFORMATION**

#### **a. Publications**

- Computer Output Microfilm—National Archives and Records Administration NARA (FSN 7610-00-117-8777)

- Microfilming Records—National Archives and Records Administration  
NARA (NSN 7610-00-387-9972)
- Micrographics Systems Analysis—National Archives and Records  
Administration NARA (NSN 7610-00-181-7579)

## **b. Standards**

### 1. Organizational Addresses:

AIIM—Association for Information and Image Management,  
Publication Sales  
1100 Wayne Avenue  
Silver Spring, MD. 20910

ANSI—American National Standards Institute, Inc.  
Sales Department  
1430 Broadway  
New York, NY 10018

ASHRAE—American Society of Heating, Refrigerating and Air  
Conditioning Engineers, Inc.  
1825 K St.  
Washington, D.C. 20006

FIPS—Federal Information Processing Standards  
Department of Commerce  
National Institute of Standards and Technology (NIST)  
Gaithersburg, MD. 20899

MIL STD—Military Standards  
Department of Defense  
Specifications and Standards  
Washington, D.C. 20301

NFPA—National Fire Protection Association  
1110 Vermont Avenue NW  
Washington, D.C. 20005

### 2. Standards Index

Air-Cleaning Devices—Used in general ventilation for removing  
particulate matter, method of —ASHRAE 76

Archival Records—Silver-gelatin type, on cellulose ester base,  
specifications for photographic film for—ANSI PH1.28 1984

Archival Records—Silver-gelatin type, on polyester base,

specifications for photographic film for—ANSI PH1.41 1984

Brittleness of Photographic Film—Method for determining the  
—ANSI PH1.31 1973

Computer Output Microfilm (COM)—Formats and reduction ratios  
for 16mm and 35mm—FIPS 54

Computer Output Microfilms, Practice for operational  
practices/inspection and quality control for alphanumerical—FIPS 82

Computer Output Microfilm—Quality standards—AIIM MSI 1971

Curl of Photographic Film—Method for determining—ANSI PH1 29  
1971 (R1977)

Formats—Military Standard Microform—MIL STD 399A

Index Method—Quality—AIIM MS104 1972

Inspection of processed Photographic record films for aging  
blemishes—NBS Handbook 96

Methylene Blue—Method for measuring Thiosulfate and silver  
Densitometric method for measuring residual chemicals in films,  
plates, and papers—ANSI PH4.8 1984

Microfiche—ANSI/AIIM MS5-1992

Protection of records—NFPA 232 1970

Recommended Practice—AIIM MS104 1972

Safety photographic film, specifications for—ANSI PH1.25 1984

16 and 35mm microfilm in roll form, specifications for—AIIM MS14  
1978

Storage of processed safety photographic film, Practice for—ANSI  
PH1.43 1983

Storing processed photographic films, plates and papers;  
requirements for photographic filing enclosures for—ANSI PH1.53  
1984

Test charts—Microcopy resolution—NBS 1010a