

NATIONAL ARCHIVES AND RECORDS SERVICE FILM-  
VAULT FIRE AT SUITLAND, MD.

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HEARINGS  
BEFORE A  
SUBCOMMITTEE OF THE  
COMMITTEE ON  
GOVERNMENT OPERATIONS  
HOUSE OF REPRESENTATIVES  
NINETY-SIXTH CONGRESS  
FIRST SESSION

—  
JUNE 19 AND 21, 1979  
—

Printed for the use of the Committee on Government Operations





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WASHINGTON : 1979

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## NATIONAL ARCHIVES AND RECORDS SERVICE FILM-VAULT FIRE AT SUITLAND, MD.

TUESDAY, JUNE 19, 1979

HOUSE OF REPRESENTATIVES,  
GOVERNMENT INFORMATION  
AND INDIVIDUAL RIGHTS SUBCOMMITTEE  
OF THE COMMITTEE ON GOVERNMENT OPERATIONS,  
*Washington, D.C.*

The subcommittee met, pursuant to notice, at 10:15 a.m., in room 2203, Rayburn House Office Building, Hon. Richardson Preyer (chairman of the subcommittee) presiding.

Present: Representatives Richardson Preyer, Robert F. Drinan, David W. Evans, Thomas N. Kindness, and M. Caldwell Butler.

Also present: Timothy H. Ingram, staff director; Timothy R. Hutchens, professional staff member; Maura J. Flaherty, clerk; and Thomas Morr, minority professional staff, Committee on Government Operations.

Mr. PREYER. The subcommittee will come to order.

We begin the first of 2 days of hearings today to discuss the fire in the National Archives' film-vault building in Suitland, Md., on December 7th of last year.

On that day, fire destroyed about 12.5 million feet of film, most of it old newsreel outtakes—the footage that ended up on the cutting room floor rather than on the screens of movie theaters.

The destroyed film was nearly half of a collection of newsreel footage that Universal Studios had donated to the Archives in 1970. Following the 1970 gift, the Archives also accepted a similar collection of March of Time newsreels which fill an identical vault building in Suitland.

In this other building, a fire broke out during August of 1977, but was contained to just one of 27 vaults. In December's fire, the film in 21 vaults was destroyed.

The cause of last winter's fire may never be known. As we will hear this morning, the fire department believes the film ignited spontaneously because the vaults were too warm.

However, an investigating subcommittee from the General Services Administration speculates that the cause may have been associated with workmen using a power drill in a vault.

But whether or not we ever find out the exact cause of the fire, we hope to explore the reasons that the vault building did not contain the December fire, and generally, the ability of the Archives to store all of the film it acquires.

Mr. Kindness, do you have some comments before we proceed?

Mr. KINDNESS. Thank you, Mr. Chairman.

I look forward to today's hearing concerning the 1978 fire at building A in Suitland. It does appear from the material that we have had available for review that a number of oversights or errors and mistakes in judgment have resulted in the tragic loss of millions of feet of nitrate film.

I believe it is important for us to carefully examine the problems that led to the two fires, with emphasis on seeking information that can be used to prevent future occurrences of this sort.

It is far more important that we help establish procedures and safeguards to prevent future fires than to attempt to place blame for those that have already occurred.

I hope we can promote improved GSA cooperation with local fire departments around the country as well.

Likewise, we should be assured that NARS is doing the best they can to protect and store and copy the nitrate film that it has available.

I am sure that today's hearing will be enlightening. I want to apologize for being tardy this morning. Mr. Chairman. Mr. Drinan is also not available because he was in the same place I was, working on the criminal code.

I look forward to hearing the testimony today.

Thank you, Mr. Chairman.

Mr. PREYER. Thank you, Mr. Kindness.

We are glad to have Congressman Ottinger here this morning. It was Congressman Ottinger's original request that involved GAO in this situation and initiated the GAO report.

[Subcommittee note: See GAO report LCD-78-113, June 19, 1978, "Valuable Government-Owned Motion Picture Films are Rapidly Deteriorating."]

Mr. PREYER. So, we will be interested in having his comments on that report and the comments generally on the Government's problems with film storage.

Please proceed.

#### **STATEMENT OF HON. RICHARD L. OTTINGER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK**

Mr. OTTINGER. Thank you very much, Mr. Chairman.

I appreciate the opportunity to testify on this subject. I wish to begin by thanking you at the outset of your investigation into the fire at the Suitland Archives.

As you know, I have been concerned with the general issue of nitrate film storage for some time. I look to these hearings as a new start in a nationwide effort to preserve forever that part of our country's past which is recorded on film.

I have with me Mr. Marvin Bernard, president of Filmlife, Inc. His distinctions in life are first being a constituent of mine and second, being an expert in the preservation and restoration of old films. Such knowledge as I have of this subject, I have learned from him.

If you have questions about what it takes to fix up old films and what the extent of the dangers are and what the costs of repair are, he is available to answer those questions.

He has a prepared statement which we would like to submit for the record.

Mr. PREYER. Without objection, that will be inserted in the record at this point.

[Mr. Bernard's prepared statement follows:]



DIVISION OF AMERICAN FILM REPAIR INSTITUTE

(201) 440 8500

141 MOONACHIE ROAD  
MOONACHIE, NEW JERSEY 07074

SCRATCHES  
BRITTLENESS  
ABRASIONS  
SCRATCHED SOUND TRACK  
OIL STAINS  
DIRT  
SHRINKAGE  
"RAINY"  
CURLS  
LOST BRILLIANCE  
TEARS  
WEAKENED SPLICES  
SPORADIC TORN SPROCKETS

WRITTEN STATEMENT AS REQUESTED BY:

House of Representatives  
Government Information And Individual Rights  
Subcommittee  
Of The  
Committee on Government Operations

IN THEIR LETTER OF: MAY 31, 1979

RE: THE FILM VAULT-FIRE IN  
Building A  
Suitland Federal Center

TO BE GIVEN ON: June 19, 1979

Submitted by:

Marvin A. Bernard  
President and Chief Exec. Officer

My name is Marvin A. Bernard, and I am the second generation and now President and Chief Executive Officer of FILMLIFE. For 28 years I have been in the business of restoring, protecting and preserving damaged motion picture film for Hollywood, television and industry. Periodically, I have done work for the Federal Government - most recently saving from total loss the archival film collection of the U. S. Marine Corps due to a fungus growth on thousands of rolls of film. I have detailed documented evidence in the attached file showing my frustrations over the years in trying to prevent such disasters as the one you are investigating here. Not only in this instance, but there have been many other losses over the years of one of a kind films - never to be seen again - a piece of history lost forever.

I am delighted that this worthy body has convened to focus attention on a tragic, historical film loss for hopefully you will prevent another film explosion which is very likely to occur.

Based upon my experience I would like to make five (5) salient points to this committee at this time. I believe

they will help this committee to focus in on the essential problems.

1. In my opinion, due to the way films are being stored, and because there are still many millions of feet of nitrate film in storage around the country, another nitrate film explosion is virtually assured.
2. All film collections, be it nitrate or safety, should be under a film inspection and annual film maintenance program, both in-house and provided by outside services, which can offer additional preservation. To my knowledge to this date while this concept exists extensively in industry and the private sector, it is nowhere to be found amongst federal film collections.
3. It is my belief that all government film collections are still lacking reel to reel inspection by its personnel. Instead, these people are maintaining paper records and files and forgetting about the physical film itself.
4. As you get more and more into these film problems, you should separate the film collections into the following

three (3) categories:

- (a) Historical one of a kind films which must be kept for posterity.
- (b) Training and current circulating films which have a short life span because of subject matter.
- (c) Nitrate film, which must be immediately restored and transferred to safety film if you intend to keep the subject matter recorded on it.

Make no mistakes. "C" is the most important problem requiring immediate attention. While no film lasts forever and is subject to chemical breakdown resulting in deterioration, the nitrate film is a live hand grenade and totally unstable.

5. What are the components of a film maintenance program? While I have documented this in detail for the purposes of this last recommendation, I will simply state that all films must be physically examined annually foot by foot on a routine schedule, and must be wet cleaned with appropriate records being kept.



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DIVISION OF AMERICAN FILM REPAIR INSTITUTE

*For inclusion in  
statement of  
Congressional Hearing.*

SCRATCHES  
BRITTLINESS  
ABRASIONS  
SCRATCHED SOUND TRACK  
OIL STAINS  
DIRT  
SHRINKAGE  
"RAINY"  
CURLS  
LOST BRILLIANCE  
TEARS  
WEAKENED SPLICES  
SPORADIC TORN SPROCKETS

EXCLUSIVE SPECIFICATIONS  
FOR MOTION PICTURE FILM  
REJUVENATION, PROTECTION AND PRESERVATION

1. Each film is examined by hand to determine the extent of damages to both the emulsion and base.
2. The damages which we are inspecting for are as follows:

Scratches (Black)  
Scratched Sound Track  
"Rainy" Appearance  
Cut-Through Scratches (Colored)  
Abrasions  
Torn Sprocket Holes  
Sprocket Tooth Punctures  
Brittleness  
Lamp Burns  
Tears, Creased or Broken Film  
Weakened Splices  
Dirt  
Lost Brilliance  
Shrinkage  
Curl  
Oil Stains  
Emulsion Deterioration

3. Depending upon the type of damage we find, each film is processed for its particular damage problem.
4. All splices are checked and bad ones remade.
5. All tears or breaks are spliced, professionally "V'd" out or taped.
6. Exclusive FLOOD-CLEAN chemistry is applied to the entire surface of your film as it is bathed in solution with custom designed needle high-speed brushes removing all imbedded and surface dirt.

FILMLIFE  
SPECIFICATIONS (CONTINUED)

7. All scratches, (black lines), are removed from both the emulsion and base. Using both French and German chemical/mechanical technology the emulsion is swelled up and melted down several times while the base is impregnated with liquid plastic under specific temperature heat and humidity controls. (We do not believe in the use of any coatings or lacquer treatment for this restoration as it affects visual clarity and definition.)
8. After your films have been rejuvenated, exclusive FILMGARD lubrication, our new film protection formula, is applied.
9. A final hand inspection of your film insures that all damages have been repaired so that upon return to you, they are ready for your screening pleasure.

NOTE: There is never a charge for a film we cannot restore to active circulation even though we have taken time to examine it and make this determination.

For inclusion in statement of  
Congressional Hearing.

## Guide to film damage and prevention

**FILMLIFE** INC.  
T.M.  
FILMLIFE BUILDING  
Moonachie, N.J. 07074  
(201) 440-8500

### Causes

### Cure

<ol style="list-style-type: none"> <li>1. Improper threading</li> <li>2. Dirt particles on projector parts (rollers, film gate, film channel)</li> <li>3. Damaged reels and rewinding improperly</li> <li>4. Continued use of film without cleaning and careful handling of its surface</li> <li>5. Too much curl in film</li> <li>6. Lost film loop</li> </ol>	 <p>sprocket</p>	<p>Thread projector making sure sprocket teeth are engaged, reels are locked on their shafts and proper film loops are maintained. Turn the manual control several times so that the pull-down claw is catching the perforations and film is moving smoothly. Keep projector and film clean using fresh inspection gloves while examining, inspect reels and flanges for burrs on edges. Projector pressure plate and aperture should be cleaned with an orange wood stick (avoid using metallic instruments).</p>
<ol style="list-style-type: none"> <li>1. Dirty projector and over oiling of film and projector</li> <li>2. Letting loose film fall on floor</li> <li>3. Static</li> <li>4. Winding up film during cleaning or lubricating</li> <li>5. Continued use without cleaning</li> <li>6. Improper or careless storage</li> </ol>		<p>Use an anti-static cleaner on film such as Flood-Clean. Never use oil as a lubricant on film. Make sure film is dry as it winds on to reel. Both ends of film should have leader for threading and run-out. Take-up reel should have at least the same capacity of feed reel. Store in humidity and temperature controlled area on a good reel in a clean can.</p>
<ol style="list-style-type: none"> <li>1. Tightening film after it is wound</li> <li>2. Jerky movement of the take-up reel</li> <li>3. Loss of film loop</li> </ol>	 <p>cinch marks</p>	<p>Do not pull film too tight or overwind. A sudden stop should be of proper length. A sudden start will flatten the film and cause break. Take-up reel should feed film smoothly and uniformly.</p>
<ol style="list-style-type: none"> <li>1. Dirty projector</li> <li>2. Cleaning film improperly</li> <li>3. Careless handling of film surface</li> <li>4. Continued use without cleaning</li> <li>5. Loss of film loop</li> <li>6. Tightening film after it is wound</li> </ol>		<p>Clean film periodically. Flood-Clean is recommended. Handle film only with inspection gloves. Clean film sprocket teeth are engaged and proper film loops are maintained.</p>
<ol style="list-style-type: none"> <li>1. Insufficient humidity</li> <li>2. Improper or careless storage</li> </ol>		<p>Moisture film should be stored in low humidity. Maximum humidity. Temperature above 29°F, and humidity that falls below 33% or rises above 60% are damaging to film. Water and film do not mix. Reels and cans in storage should be free of all dirt and dust.</p>
<ol style="list-style-type: none"> <li>1. Damaged reel with burrs on side of flange</li> <li>2. Loss of film loop</li> <li>3. Dirty projector</li> <li>4. Dry film</li> </ol>		<p>The feed and take-up reels should be in good condition. Burrs on dry reels cause nicks at the side edges of film. Thread your projector cleaned and lubricated projector so that sprocket teeth are engaged and film is locked in securely and reels are locked on their shafts. Turn the manual control several times to be certain film is engaged and loops are constant. Properly wound film is tight and smooth on both sides of the reel. Prevent dryness by keeping film stored in a controlled atmosphere. Extremes of temperature or humidity damages film and shortens its life.</p>
<ol style="list-style-type: none"> <li>1. Improper threading</li> <li>2. Damaged perforations</li> <li>3. Loss of film loop</li> <li>4. Improper rewinding</li> <li>5. Improper splicer alignment</li> <li>6. Inadequate emulsion removal</li> <li>7. Old or thickened film cement</li> <li>8. Insufficient drying time in splicer</li> <li>9. Torn perforations</li> </ol>	 <p>tears and splices</p>	<p>Engage sprocket teeth in perforations and be sure proper film loop is maintained. Turn the manual control several times so the film is moving freely. All perforations on the film should be in good shape and both reels winding straight and uniformly. Some film stocks require removal of a backing on the base. Failure to remove emulsion completely is the largest single cause of splice failure. Film cement that is left uncovered and permitted to thicken is useless for splicing.</p>

## Causes

## Cure

<ol style="list-style-type: none"> <li>1. Dry film</li> <li>2. Loss of film loop</li> <li>3. Improper threading</li> <li>4. Too much tension on gate or take-up reel</li> <li>5. Shuttle worn or out of adjustment</li> <li>6. Bent pull-down claw</li> <li>7. Worn sprockets</li> <li>8. Shrinkage</li> </ol>	 <p>torn perforations</p>	<p>High temperatures or low humidity cause dry film, which in turn causes brittleness and warping. Store film in a controlled atmosphere. Check your projector periodically for worn or out-of-line parts. Sprocket teeth must be engaged and proper film loops maintained. Feed reel and take-up reel should be at least the same capacity, with correct tension on both. Properly wound film is smooth on both sides with no protruding edges. Damage breeds damage and minimal broken or poor perforations can endanger an entire film.</p>
<ol style="list-style-type: none"> <li>1. Aged film</li> <li>2. Lack of humidity or excessive temperature</li> <li>3. Improper or careless storage</li> <li>4. Fading</li> </ol>		<p>Film intended for long term storage should be sealed in a can, waxed and film-dock sealed. Temperatures above 75°F, and excessive humidity that falls below 35% or rises above 60% are film enemies. Store in a controlled temperature and humidity area.</p>
<ol style="list-style-type: none"> <li>1. Dirty processing storage</li> </ol>		<p>Use an anti-static cleaner on the film. Handle it using clean inspection gloves. Allow film to warm to room temperature. Store in a can free of dirt and lint in a controlled atmosphere. Extremes of temperature and humidity that go above 75°F, and below 35% or above 60% relative humidity will cause color shifts. Color dyes are affected by temperature and humidity. Use Film-Gard for all new film protection.</p>
<ol style="list-style-type: none"> <li>1. Dirty particles in projector path</li> <li>2. Damaged reels</li> <li>3. Rewinding film improperly</li> <li>4. Lubricating film after it is wound</li> </ol>	 <p>lines in emulsion</p>	<p>Clean the projector and aperture plates thoroughly . . . dirt particles tend to build up there. Both reels should be free of wobbles, bends or burrs. A bent or wobbly reel can cause cuts and lines on each revolution of the film. Handle film only with clean inspection gloves.</p>
<ol style="list-style-type: none"> <li>1. Jammed projector</li> <li>2. Insufficient lubrication of film and/or projector</li> <li>3. Dirty projector</li> <li>4. Sticky fire shutter</li> </ol>	 <p>burns</p>	<p>Turn off lamp before stopping projector. Fire shutter should be in its proper position. Film and projector must be cleaned and lubricated sufficiently to insure all parts running at maximum smoothness and efficiency. Excessive lubrication is detrimental to both film and projector.</p>
<ol style="list-style-type: none"> <li>1. Incorrect take-up reel size</li> <li>2. Spillage of film, and stepping on loose film on the floor</li> <li>3. Uneven rewind</li> <li>4. Loss of film loop</li> </ol>	 <p>crossed or broken film</p>	<p>The take-up reel should be at least the same capacity as the feed reel so that film will not overflow, spilling on to the floor. Lock reels to their shafts so they don't "walk-off." Watch to see that film winds evenly and smoothly without protruding ridges on take-up reel. Maintain constant film loops . . . a sudden jerk can tighten the film and cause break.</p>
<ol style="list-style-type: none"> <li>1. Bad splices</li> <li>2. Torn perforations</li> <li>3. Shrinkage</li> <li>4. Improper threading</li> <li>5. Loss of film loop</li> <li>6. Dirty projector</li> </ol>	 <p>sprocket tooth indentations</p>	<p>All splices should be sealed tight with no torn perforations protruding anywhere. Proper humidity and temperature controls in storage areas will keep moisture in the film and prevent damage. Clean projector to insure its smooth performance. When threading, engage the sprocket teeth in perforations and maintain proper film loops. Test with manual controls.</p>
<ol style="list-style-type: none"> <li>1. Too much humidity</li> <li>2. Film wet and improperly dried</li> <li>3. Fungus or mildew attacks the gelatin emulsion</li> </ol>	 <p>emulsion deterioration</p>	<p>Water and film do not mix. Ideal storage is in a sealed can at 50°F, and 50% relative humidity. Extremes above 75°F, and relative humidity that falls below 35% and rises above 60% will seriously damage film.</p>

Historically, both the government and private sector have always been interested in pre-production and pre-storing the film for distribution. It seems that once a film is developed and put into the can, it is a generally accepted fact that it will be there forever and all we have to do is use it. Some 35 years ago Hollywood and television people learned the raw truth about film and its aging processes. Since then, several of them are well into rejuvenation, protection and preservation of their classical and cherished films. FILMLIFE has been happy to be a major contributor to the continued long life running films of these companies. Through our efforts such films as, "Gone With The Wind," "Snow White And The Seven Dwarfs," "Bambi," etc. etc. have been seen for generations using the same print. No copies were made and no films were lost with very few exceptions.

The enclosed documentation shows a serious effort on my part to introduce this concept of film maintenance and preservation both in house and out to the government. The greatest opposition has come from the lack of knowledge by the personnel who are running and in control of these film collections. The second problem arises when they have learned and would now like to implement a program and find they do not have money, time or staff to take it on.

Earlier I said there is a great interest and knowledge in the pre-production operations of film. For more documentation on this phase, I suggest you contact the CBS program 60 Minutes because within the past year they did a program entitled, "Filming On The Potomac." They have also been numerous stories about the annual government expenditures in audio-visuals which estimates reach some 500 million dollars. One of the trade publications in the industry called BUSINESS SCREEN delved into this in detail I believe some time in 1977.

I wish I had a crystal ball so that I could see how this committee investigation is going to reach out, harness this monumental task of examining all film collections physically to determine their condition, and then to establish a film maintenance program for their on going protection and preservation before we have another gigantic film loss. That, gentlemen, is the most important decision that can come out of these hearings and, in the case of the film in the "C" category mentioned earlier, time is of the essence.

I wish to take a moment at this time to thank two or three of your worthy colleagues who had the foresight and interest to see the seriousness of this problem the moment it was

brought to their attention, in particular, your Congressman Richard Ottinger, who succeeded in preparing a report to the Congress of the United States in June of 1978 covering the deterioration of government film collections.

Thank you for giving me this opportunity to define the problem which you are facing, not only with National Archives, but with all your film collections.

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[Subcommittee note: remainder of submission available in subcommittee files.]

Mr. OTTINGER. His knowledge of the subject and his expert awareness of the hazards of nitrate film enable him to depict with what I am afraid is frightening detail the vast number of threatened film in our Archives.

I would like to say that I think this is a case of the Government being pennywise and pound-foolish. For a relatively small amount of money, we could by now have preserved our film and eliminated a very serious safety hazard.

For failure to do that, we presently have a considerable hazard on our hands. We have a good deal of our history in jeopardy.

A new start is needed because the story of our film preservation endeavors is the sad tale of a project well begun and then forgotten.

One year ago today, on June 19, 1978, the General Accounting Office released a report whose title was a warning that "Valuable Government-Owned Motion Picture Films Are Rapidly Deteriorating."

The report could not have been more explicit. It presented overwhelming proof that the many nitrate film storage vaults scattered across this country do not preserve film, but instead, turn thousands of reels of film into bombs. The GAO report even contained photographs of a nitrate film explosion and its devastating results.

Even when, through luck, no explosions occur, the nitrate film is deteriorating, inexorably and inevitably. And when it does, we are robbed of the record of our past.

The GAO report left no doubt of this dual danger: nitrate film disintegrates and, in doing so, creates the hazard of a powerful, spontaneous explosion.

Six months after the release of the GAO report, an explosion and fire destroyed the film vaults in building A at the National Archives facility in Suitland, Md. The danger, of which the GAO report had warned, had become a reality.

Worse still, the danger has not passed, has not been dealt with, and the threat of spontaneous combustion exists now in archives across this country.

This, incidentally, is true, both with respect to Government facilities, and with respect to many of the film studio archives that we probably ought to be interested in, as well.

My concern is that we have not addressed these problems—have not taken the dramatic, determined steps necessary to prevent the dangerous deterioration of nitrate film.

The fact is that the efforts to transfer the nitrate film to safety film have been, in large part, paltry.

The Suitland fire was a hint, an intimation, of the losses we will suffer unless we act.

This deplorable situation was brought to my attention by Marvin Bernard. As I indicated previously, he is an expert in the preservation and restoration of old films. Mr. Bernard has come to Washington today to submit for the record a statement of the continuing and growing danger posed by the storage of nitrate films.

I wish to draw your closest attention to Mr. Bernard's submission to the record. His knowledge of this subject and his expert awareness of the hazards of nitrate film enable him to depict with frightening detail the vast number of threatened films and archives.

Mr. Bernard and I are both deeply disturbed by the fact that the recommendations and conclusions contained in last year's GAO report seem to have been forgotten. Yet, had these recommendations been aggressively pursued, it might not have become necessary for this panel to convene in search of the cause of a devastating fire.

I hope that in the course of these hearings you will bear in mind that the fire at Suitland was only a suggestion of a far larger catastrophe. When you find the cause of the explosion and fire there, you will have found the cause of explosions and fires that may yet occur at other archives throughout the country.

Once again, Mr. Chairman, I thank you for this opportunity. I look forward to the knowledge gained from these hearings to help prevent any recurrence of the calamity at Suitland, any similar disaster at any archive, and to help preserve our past as it is recorded on film.

Thank you.

Mr. PREYER. Thank you very much. We appreciate your early interest in this. As you say, it is tragic that the GAO's warnings were not heeded in time to prevent the fire.

I think our staff people would like to talk with you, Mr. Bernard, further, perhaps during lunch today. We then may have some more questions relating to your expertise.

Are there any comments?

If there are no questions, then we want to thank Mr. Ottinger and Mr. Bernard for their presence.

I understand that we now have some samples of the type of newsreel film that was destroyed in last December's fire. These examples escaped the blaze because they had already been converted from nitrate-base film to safety-base film and were stored in different vaults.

If our Cecil B. DeMille on the staff will turn out the lights, we will have the film.

[Movie shown and slides shown.]

Mr. PREYER. Thank you very much.

Those were very interesting and nostalgic. We end the fun now and have to get to work.

Our next witness is Fire Chief Jim Estopp of the Prince Georges County Fire Department.

We appreciate your being with us today, Chief Estopp.

For investigative purposes, Chief, it is the committee's custom to swear in its fact-finding witnesses. If all of you will please stand, I will administer the oath.

Do you solemnly swear that the testimony you are about to give this subcommittee will be the truth, the whole truth, and nothing but the truth, so help you God?

[Chorus of I do's.]

Mr. PREYER. Chief, your men performed heroically during this fire. I understand that 14 of them were hospitalized for burns or exposure to this highly toxic smoke which was given off by the burning nitrate film.

When the first firemen arrived, I understand they entered the building at risk to their own lives to look for people whom they thought might have been trapped there.

In their search, they apparently opened vault doors and thus defeated the building's purpose of keeping a fire compartmentalized.

although I do not think anyone would want to fault you for looking for people who might have been trapped.

Later, the blowout panels were knocked out and some vault windows also. This may have helped spread the fire.

I am happy to learn that steps are being taken to solve the communication problems between the fire department and the fire safety people within the Public Buildings Service of GSA.

The GSA investigating committee recommended that the fire department and the GSA sit down and plan strategy on how to fight fires in the vault building.

I know you have some strong views that are at odds with the GSA fire report.

Let me ask you now to proceed with your report in any way you see fit.

**STATEMENT OF M. H. ESTEPP, CHIEF, PRINCE GEORGES COUNTY FIRE DEPARTMENT; ACCOMPANIED BY D. BROOKS CROSS, CONSULTING ENGINEER; DAVID M. BANWARTH, FIRE PROTECTION ENGINEER; AND DAVID MALBERG, INVESTIGATOR**

Mr. ESTEPP. Thank you, Mr. Chairman.

Mr. Chairman, I would like to present perhaps an overview of my testimony detailing some of the points of disagreement with the GSA ad hoc report and some of the other information that they have compiled.

I would like to introduce Lt. David Malberg, an investigator with our department; Mr. Brooks Cross, who is a professional engineer and a consultant to the fire department; and Mr. David Banwarth, a registered fire protection engineer.

We have some of our other people here today as well.

My name is Jim Estep, fire chief of Prince Georges County, Md. In that capacity, I am responsible for firefighting and rescue operations for all areas within the boundaries of the county, except the confines of Andrews Air Force Base, with which we have a mutual aid firefighting agreement similar to those in effect with surrounding political jurisdictions.

In all other Federal buildings in the county, the Prince Georges County Fire Department provides fire protection under the same operational guidelines that cover any occupancy in the county. The only exception to this is the area of buildings both occupied and owned by the Federal or State governments. In these buildings, we have the responsibility to provide fire protection, but do not have code enforcement authority or inspectional powers.

We have been provided a copy of the ad hoc committee report on the circumstances surrounding the fire at building A of the Suitland Federal Center, which occurred on December 7, 1978, and welcome this opportunity to comment on that report.

As an advance summary to my comments, let me say that there are areas of the report with which we concur, but there are several points and theories with which we disagree, and we take exception to several statements, and to the general tone of the entire report.

For the sake of continuity, my remarks will follow the same general order as the report itself.

In part II, which provides an abstract of the general scenario of the fire, the report indicates that the fire broke out around 12 noon, and that the fire department units arrived about 15 minutes later. Such slow response is an affront to the desire and tradition of the fire service to respond to emergency calls as quickly as we can.

Actually, the total elapsed time from our first receipt of a telephone alarm—12:06—until the fire location was announced to stations—12:08—was about 1.5 minutes; the first unit reported on the air and responding immediately, and the first unit arrived on the scene about 3 minutes later—12:11—followed within seconds by four other pumps and a command officer.

Our total response time, from receipt of a telephone call to units on the scene, was between 4 and 5 minutes.

Incidentally, during the first 2 minutes of this sequence, we received four telephone reports of the fire; three from businesses across Suitland Road from the film bunker, and one from the county police. We did not record a call from the Federal Center during that period.

Our first reaction to this is that something must be inadequate in the fire reporting procedures of the Center if an alarm is delayed this much. I understand that the GSA's fire reporting procedures call for the person discovering a fire to first report it to the Center's guard force.

I question the wisdom and purpose of this regulation. To the best of my knowledge, the guards are not equipped or trained to fight a fire, and this reporting procedure can only serve to delay fire department response to an emergency.

Part IV of the report, which deals with background information, contains two areas of contradiction, one with other parts of the report itself, and one with information gathered by our department.

First, the report describes the results of tests conducted in the 1940's that indicate a deluge sprinkler system to be more than five times as effective as a conventional wet pipe system at controlling a nitrate film fire—7 percent burnout versus 37 percent in the same timeframe—yet the report in part VII says that both a deluge and a wet pipe system will control a fire.

Granted, a wet pipe system is better than no system, we would be foolish to equate the quality of such a system to a deluge system.

Let me briefly describe the differences in the two types of sprinkler systems I have just mentioned. In a wet pipe system, water under pressure is contained in the system's pipes. Each outlet is sealed with a fusible link, which melts at a predetermined temperature and releases water through the sprinkler head.

This type of system is excellent for most conventional installations, but since each head must be heated in order to allow water to flow, there is a significant time delay in situations where there is the likelihood of a rapid heat buildup, such as is the case in fire involving cellulose nitrate film.

For this type installation, a deluge system is recommended. In this type system, all the heads in a given area are open, and the water is held back from these heads by a single valve.

The central valve is activated by a smoke detector, or as in the case of the film vaults, by a heat sensitive link. When activated, the valve opens to permit water to flow to all heads at the same time, thus flooding the area with water.

Second, part IV of the report indicates that the PBS engineers reported the building's air-conditioning system was operating the day of the fire. Our fire investigators interviewed workers in the building that day and received information that the air-conditioning compressor was cycling repeatedly on and off, and that both supply and return Freon lines were hot to the touch, indicative of low Freon.

There had apparently been a leak in the cooling system for about 2 months, which was being treated with regular doses of Freon.

The building supervisor had reported the possibility that the system needed Freon 6 days before the fire, and the system was checked the morning of the fire. Our efforts to interview the worker who checked the unit were futile, so we were unable to determine what work, if any, was done.

The unit did continue to cycle on and off through the morning. Also, the contractors working in the building reported that the area in which they were working was warm enough that they removed their jackets while working inside and put them back on to go outside to perform duties.

We have received information from Mr. Al Daily, the refrigeration man for the Kocharian Co., the contractor working in the building that day, which was later substantiated by Mr. Cross, our independent heating and air-conditioning consultant, of the characteristics of the type air-conditioning unit in service at the Suitland Federal Center.

Conditions of low Freon and low ambient temperature, such as existed on the day of the fire, lead to erratic operation of the unit. When this occurs, heated Freon gas, in excess of 100°, bypasses the system's condensing unit and is pumped directly into the vault fan units.

In effect, the system thus becomes a heating unit, and it is quite reasonable to assume temperatures of over 90° in closed vaults.

Storage of cellulose nitrate film is recommended by Eastman Kodak Co. to be in areas of 50° F., or below with a relative humidity of 40 to 50 percent.

According to the U.S. Weather Bureau, the relative humidity on the morning of the fire ranged from 66 percent to 79 percent. In the days immediately preceding the fire, it was almost constantly above 50 percent and ranged up to 97 percent.

Thus, the film was stored in conditions that exceeded recommendations in both temperature and humidity.

Archivists believe the humidity may be more important than temperature as it relates to accelerated decomposition of the film.

Above these limits of temperature and humidity, the film begins to decompose. The decomposition process is a chemical reaction that produces its own heat, produces its own oxygen, produces its own flammable vapors, and feeds upon itself, leading to even faster and faster decomposition. If unchecked, this chemical reaction eventually leads to spontaneous ignition of the film.

I feel it would be appropriate to briefly examine building A in light of existing fire protection standards and in particular, the National Fire Protection Association Standard No. 40.

In the report, several references are made to NFPA pamphlet No. 40. This pamphlet is written by the National Fire Protection Association, and is solely devoted to recommendations and model fire codes regarding the storage and handling of nitrate film.

Although the most recent revision of the standard is dated 1974, and is not specifically promulgated as being retroactive, I feel it would be beneficial to examine Building A in light of NFPA 40, to see just what sort of building we were dealing with.

One of the primary items in NFPA 40 is the installation of approved fire doors at the entrances to every film vault, and at key separations within the building. To qualify as an approved fire door, an assembly must meet certain design criteria, including self-closures and positive latches.

This means that the doors must close and latch without manual action whenever they are opened. According to Mrs. Annie Ward, the supervisor of operations at the film bunkers, many of the doors in this building required an excessive degree of force to latch. In fact, she had to occasionally get help to close a vault door.

This is not acceptable according to NFPA 40.

[See app. 13 for chart.]

Mr. ESTEPP. You can notice by this diagram there are three points where the door has to be plumb with the door jamb and they have to line up at all three points in order for the door to close.

The doors, according to the GSA report, were homemade, using "C" channel and  $\frac{3}{8}$ -inch sheet metal and were fitted with a latching mechanism that required a handle to be turned about 30 degrees to either open or close it.

NFPA 40 also recommends that these doors be insulated to retard the transmission of heat through the door. The doors were not insulated and, being metal, probably aided in the transmission of radiant heat.

Further, the propping open of fire doors, as was apparently the practice in the building, negates the value of fire doors, which only do their job when closed and latched.

We are very interested in determining what standards GSA applies to the construction of these buildings, if there are any.

Other deficiencies noted in the building, when compared to NFPA 40, included the lack of plaster coating on interior walls of vaults to prevent the intrusion of flammable vapors, and film stacked on shelves too high to be within the effective protection of the sprinkler system.

However, the most devastating building condition was the woeful inadequacy of the sprinkler system as it existed at the time of the fire. This system, which should have had sprinkler heads installed in a deluge design for optimum effectiveness, was installed with six conventional wet-pipe heads per vault, and two of those had been removed 3 months earlier, apparently by the contractor.

Not only did the wet-pipe heads respond much slower to the fire than deluge-type heads would, since each head has to be heated to 165 degrees before opening; but, even when all heads in a vault were flowing, the amount of water being applied to the fire was probably incapable of controlling its spread.

If we look at the nearly explosive speed with which a cellulose nitrate film fire spreads, and add the time delay that is inherent in any wet pipe system to react to the fire, it is quite reasonable to anticipate a vault fully involved in fire by the time all sprinkler heads are activated.

Using the data in the GSA report, we have calculated that, with a

vault fully involved, and all four sprinkler heads flowing water, the water extinguished as little as 10 percent of the fire.

The rest of the fire's heat energy was being vented to the outside or was spreading throughout the rest of the building, continuing the spread of the fire to other vaults.

The removal of two heads in each vault presented another problem to the efficiency of the system. Each vault was a little less than 700 cubic feet in volume, the maximum allowed by NFPA 40.

Originally, the sprinkler heads were evenly spaced so that each head covered about 108 cubic feet. When the two heads at the end of the line were removed, the others were not relocated. This left the head now at the end of the line with a volume of over 300 cubic feet to protect.

This was three times its intended capacity.

A building's fire protection features are intended to fit together, much like the pieces of an arch, to form a system of protective features. Just as the removal of one stone from an arch starts its downfall, the elimination or reduction of one element of a building's fire protection system can initiate a chain of events leading to a total failure of that system.

In building A, the inadequate fire doors, the subverted sprinkler system, the unsealed walls that permitted the travel of flammable vapors literally through the walls, are examples of just such a downfall. But there were other factors in Suitland that led to the problems on December 7.

Housekeeping was shoddy—containers of film were left on the floor in cardboard boxes; there was no early warning or fire detection system; the film cans were not vented to relieve the gases of decomposition, as is recommended by Eastman Kodak; the film vaults themselves were not vented to remove these same gases; the air conditioning system was not working properly; some vault doors were left standing open by workers, and the employees of the facility, who should have been familiar with the dangers of the material they worked with daily, apparently did not correct the situation.

An earlier report of the fire would have been possible, but the water flow alarm switch, which was installed in early 1978 to detect the flow of water in the sprinkler system and transmit an alarm to the guard office, did not work due to being improperly connected, according to the GSA report.

With all of this going against us, the inevitable happened, and fire broke out on December 7. Shortly thereafter, the buildings' occupants hastily exited the bunker for various parts of the Federal Center.

Due to the distance they had to travel, the first fire reports came from persons in the neighborhood, not NARS employees.

When our units arrived on the scene, they were not met by anyone. They saw a car parked by building A, and the front door was ajar.

This indicated the strong possibility of a trapped person. Fully aware of the dangers they were facing, they entered the building to search for victims.

A second crew of firefighters followed the first crew into the building to serve as a backup, while a third crew was assigned to ventilate the building.

[See app. 13 for chart.]

Mr. ESTEPP. You will notice on the enclosed visual, building A, and the green dot there is the approximate location of the automobile.

Let me point out that ventilation is a standard procedure for us on all structural fires. We ventilate to remove smoke and gases for the relief and protection of firefighters who may be working inside a building, such as our people were in building A.

In the case of the film vaults, the crew assigned to ventilate did so by removing several blowout panels at the far right rear corner of the building.

They had removed three panels by the time the first crew had checked about a third of the building's vaults. At that point, the fire ground commander determined the building was too hazardous and ordered the interior crews to pull out.

Just after that, an explosion rocked the building, injured several firefighters still inside, and blew out at least one more panel, somewhere in the middle of the building where the firefighters had not yet reached, as Lt. Malberg is pointing out.

The firefighters inside were, at this point, concerned with survival, and did not stop to tidy up to make sure doors were latched on their way out. In any event, they were unable to see the door latches, since visibility above knee level was zero. The firefighters had to crawl in the building.

The fire eventually spread to at least 19 vaults, including several that had not been opened by either workers or firefighters. Some vaults that had been opened were unburned.

The GSA report indicates that an NARS worker reported to firefighters that no one was in the building. According to his actions, we have identified this employee as Mr. Vernon Early, who was interviewed at length by our investigators, and he made no statements regarding the alleged report to firefighters, nor can we find anyone with whom he spoke.

At our request, and at the invitation of GSA, our fire investigators conducted an investigation commencing immediately after the fire in building A was extinguished and continuing for several days. Once again, we do not have investigative authority concerning fires that occur on federally owned property within the county except by invitation.

The results of our investigation differ with those of the GSA report regarding the area of fire origin, and the mechanism of origin. Due to the heavy damage of the ceiling of vault 8, as is shown here, and the spallation of concrete on the underside of the roof outside the same vault, conditions strongly suggest that the fire may have originated in vault 8.

No one had entered that vault on the day in question.

It is also our belief that the fire originated as the result of decomposition of the nitrate film, which self-ignited.

The decomposition, we feel, was precipitated by the film being stored at temperatures and humidity levels well above those recommended for cellulose nitrate film. Ignition is quite likely to have originated in just one film can that was decomposing and producing heat that could not be relieved because of the lack of venting.

The fact that the vault had not been opened that day, and the air handling system did not introduce fresh air into a vault, prevented the high temperatures and flammable vapors from being dispersed.

We do not accept the dual theory of the drill being associated with the fire cause.

We have examined, and cannot accept, the theories of the GSA report blaming the fire origin on activities associated with the work being done on the building. Both theories associated with the electric drill used by the contractors do not appear to have been reasonably associated with causing the fire.

First, the thought of a red-hot chip from a reinforcing rod struck by the drill falling onto or into a cardboard box and igniting it is too remote for serious consideration.

Even if it had landed there, the volume of the chip, its initial heat, the rate of its cooling, and the amount of heat energy required to ignite the cardboard are not compatible in this case.

Any material combustible enough to burn in this manner would probably ignite right away, and be obvious to anyone working in the same room.

Secondly, a theory was advanced that the drill itself was laid in contact with some combustible material, such as a cardboard box, and the heat of the drill itself somehow ignited the box.

First, if the drill's temperature would have been at or near the 700 degrees required to ignite the box, no one could have held it; the drill was found after the fire, lying on top of a stool where the contractor had left it when quitting for lunch.

Neither the drill case nor bit was touching or close to any material other than the stool, which was relatively undamaged.

Further, unburned cardboard boxes were found on the floor of the same vault as the drill, eliminating that area as a point of origin for the fire; this was vault 10.

The report mentions, briefly, firefighting activities on the day of the fire, and indicates that the Fire Department did not pump into the sprinkler system.

Again, referring to the diagrams that Lt. Malberg has, this was not the case. Following standard procedure for sprinkler-protected buildings, not one, but two engine companies connected to and charged the building's sprinkler siamese connection.

These lines were disconnected from the pumpers when the units were ordered to pull back from their positions fairly close to the building following two interior explosions.

They were not recharged after the units pulled back.

In fact, the retreat was done with such haste, the one pumper backed up dragging lines that were still connected, and the officer of the other pumper cut his unit's supply lines with an axe in order to clear the unit.

In my opening remarks, I referred to our taking exception to the general tone of the report. Let me address that point in closing.

Nowhere in this report does the Federal Government accept any responsibility for any of the conditions that caused this fire to be as serious as it was. The report is quick to blame the contractors for starting the fire, the contractors for modifying the sprinkler system, and the contractors and the fire department for leaving the doors open.

But I note the conspicuous absence by GSA or NARS of any acceptance of responsibility for a temporary building still in use for

high hazard storage after 30 years, or for the sprinkler system not being installed as it was originally intended—a deluge system, or for not detecting that the sprinkler system had been in an altered condition for three months, or for apparently never testing the flow switch after it had been installed, or for not installing doors that could reasonably be expected to retard the spread of a fire, or for not training building personnel in the proper actions in a fire, or for taking a piecemeal approach to repairing the vital air conditioning system.

There seems to have been a general shrug of bureaucratic shoulders about this building being in the midst of a populated area.

[Photos shown.]

Mr. ESTEPP. You will notice from these aerial photographs that there are several apartment projects, commercial areas, a well-traveled highway, and a nursing home adjacent to those three film bunkers.

Even more than that, I view attempts to “scapegoat” any blame away from GSA as an attempt to cover their own ineptness, which was demonstrated by the condition of the building before the fire, and was emphasized by some of their actions immediately after the fire.

The film that was not burned in the fire was removed to a refrigerated trailer parked in the middle of the Suitland Federal Center. The trailer was not secured; in fact, a television reporter was able to go up to the trailer and open the door unchallenged.

The refrigeration broke down some time later, and the operators attempted to remove the trailer, including its cargo, by truck in order to drive it to a shop to get the refrigeration fixed. Before that, they even requested the fire department to bring a pumper to the site in order to hose the truck down with water to reduce the inside temperature.

The Prince Georges County Fire Department accepts its responsibility to provide fire protection to the Suitland Federal Center and other Federal facilities in our county.

In fact, discharging that responsibility almost cost the lives of several firefighters last December. But this fire points out that, while we have the responsibility to provide fire protection, we do not have the authority to enforce any local fire codes on Federal sites, nor do we have any real control over the condition or contents of any buildings.

We look to the Federal Government to carry out its responsibility. We hope we do not have to wait until a firefighter’s funeral is the proof that they are falling far short of it.

Thank you. I certainly would be glad to answer any questions that you may have, Mr. Chairman.

Mr. PREYER. Thank you very much, Mr. Estep.

Anybody who tries to make you a scapegoat has a formidable adversary on his hands. That is very impressive testimony.

You make a statement that the whole facility should be removed at once. That sounds a little bit like Congressman Ottinger’s description of these vaults as being “bombs,” which is the way I think he put it.

This raises the question of whether you got to the fire in 15 minutes, or whether it took you 5 minutes to get there, would it have made any difference.

Mr. ESTEPP. That is a good point. I think if the sprinkler system had been working properly, there is a possibility that there could have been

some fire control, but in my own opinion, you are right—those buildings are like “bombs” and what we could have done is problematical.

Mr. PREYER. Would any sprinkler system have made a difference, like the deluge type or a standard type?

Mr. ESTEPP. The key to a system working properly and to a system doing its job is that it must be the right type of system and it must be installed properly. So far as we can determine, we did not have enough heads to cover the fire loading in the vaults, and, of course, two heads had been removed by a contractor, rendering the remaining system wholly inadequate to cover any fire that might have occurred.

We had another problem in that the deluge system requires open sprinkler heads that would dump water immediately into the vault. Of course, these were closed heads and had to reach a temperature of 165° before they opened.

Mr. PREYER. You mentioned that the fire eventually spread to a number of vaults, I think 19, and that some of those were closed. How many of the vaults burned that had the doors closed? If so, how did the fire spread to supposedly closed vaults?

I think the earlier fire out there in 1977 was confined to one vault.

How was that one confined to one vault and this one spread to 19? Was this even through closed vaults?

Mr. ESTEPP. To say that our science is so exact that I could tell you why only one vault burned in 1977 and several burned in 1978 would be like trying to predict whether Metro was going to be on time. It would be difficult to do that.

Obviously conditions would have to be repeated exactly. We have already learned that a number of vault doors were open at the time that this fire occurred.

We know that the heating and air-conditioning system was not functioning. I do not think there is a valid comparison of the fire in the 1978 fire, that is, the fire in the vaults in building A, as compared to the vaults in building C that burned in 1977.

We would have to say that the conditions of the two fires were exactly the same. I do not think those conditions can be exactly repeated.

You are dealing with something that literally is operating like dynamite. There are a number of actions that occurred in 1978 that were different than 1977. The building was open. There were workers inside. It was not a secure operation.

I am not sure that just the closing of those vault doors was the factor that contained the fire in 1977 as compared to 1978.

Mr. PREYER. Was the fire in 1977 in a situation of vaults that were generally like the one you described here, that is, with uninsulated doors, which were difficult to shut?

Mr. ESTEPP. Yes. So far as I know, those three bunkers are constructed just about the same.

Mr. PREYER. After the fire 16 months earlier, did you take any steps to call to the attention of the authorities that this building was like a “bomb,” and, for one thing, to familiarize yourself with the vault situation so that your firefighters would know how to deal with it?

Mr. ESTEPP. I did not take over our department until 1978, so I cannot speak for events prior to that so far as our top administration is concerned.

I would say that, from what I have learned, it was very difficult to gain access to some of the facilities in the Federal Center, and to have the kind of mutual exchange of ideas and preplanning that we would normally find in facilities that were not controlled by some other third party.

I would think that in my review of the 1977 fire, our people apparently thought that the situation was going to be corrected, that that near disaster was evidence enough that something needed to be done, and expected the proper authorities within GSA to follow up.

Apparently that was attempted but not completed by the time of the 1978 fire.

Mr. PREYER. You say that it was attempted and that you had difficulties in gaining access.

What was the problem in gaining access?

Mr. ESTEPP. I do not think the problem in gaining access was one that was deliberate. I think it was the case that at that site there are multiple Federal tenants who are under the control of GSA.

Apparently there are some secure areas on the property other than the film vaults, and even with the film vaults there are two different tenants, the Archives and the Library of Congress.

The general impression left by the security people to our company officers was that these were restricted areas and their access was limited.

Whether, in fact, that was the case or not, is open to speculation, but in any event, the message transmitted was that these were secured areas.

Mr. PREYER. Mr. Kindness?

Mr. KINDNESS. Thank you, Mr. Chairman.

Chief, I want to thank you for your testimony.

I am curious whether you could describe to the subcommittee, the types of contacts that you or your Department have had with GSA, the Library of Congress, or any other part of the Federal Government concerning these buildings, following the 1977 fire, and perhaps more pertinently, following the 1978 fire.

Could you describe whom you contacted and what sort of results occurred?

Mr. ESTEPP. I can speak more authoritatively, I think, since the 1978 fire. Through our county executive, we contacted Dr. Rhoads, the National Archivist. He made available staff personnel who allowed us access to the buildings. We were, at that point, communicating in a manner that we probably should have been communicating in years past.

Since the 1978 fire, we have had no problem gaining access or doing anything else that was necessary.

In the 1977 incident, so far as I know, our investigators did come in, at GSA's request, and did have a cursory look at the buildings and again pointed out some of the problems.

It was our understanding that those conditions were going to be corrected.

We certainly do not have the manpower to check up on all of their activities and see, on a day-to-day basis, that these things are being carried through.

Mr. KINDNESS. At the present time, are there conditions that exist, not just with respect to the nitrate film, perhaps, but otherwise in that area? Do they need correction?

Is there a systematic way for you to determine that those steps are being taken?

Mr. ESTEPP. Are you talking about the film bunkers themselves or other Federal installations?

Mr. KINDNESS. Yes; the film bunkers and other buildings.

Mr. ESTEPP. Basically we have a pretty good relationship with GSA when it comes to other Federal facilities. I am not certain of the actual control, but NASA, for example, I would imagine that does not come under GSA. But that is a Federal facility that takes up a lot of ground in Prince Georges County.

We have an excellent rapport with them. If there are conditions introduced at NASA, their fire protection people give us a call. We go onsite and preplan. There is an exchange back and forth by which they notify us of things that we need to know.

This kind of situation did not exist at Suitland. I believe that since the last incident, and with the kind of contact that we have had, we will have good close communication in the future. I do not believe that those bunkers are in the proper location. They should not be sitting approximately 100 or 150 feet away from a highly congested roadway.

In the photographs in the upper left-hand corner, you can see Suitland Road with an automobile passing. You can see the fire in the early stages. The products of combustion are probably at their most toxic level at that particular stage, when the cloud is yellow. It—the smoke—is shown traveling toward Suitland Road because the wind was blowing in that direction.

To me, there is a threat to the public safety now. It has existed and we have just been lucky.

The removal of those bunkers is the only thing that would forestall any further problems there, even though they are working to correct conditions within the building. I think things are too unstable to say that the situation will not repeat itself.

Mr. KINDNESS. In the case of the storage of the nitrate film, is it unusual to have a backup system for the sprinkler system, or is that recommended procedure?

Mr. ESTEPP. There are a number of conditions that are recommended. First of all, in the building construction, there is redundancy required in fire doors, which did not exist on these vaults. There should be two doors—an inner door that would be closed in a sliding manner by the activation of a fusible link, and a door on the outside that would close by a self-closing mechanism when anyone entered or left the vault.

There is a great deal of redundancy. As I mentioned earlier, it is a total system. The air-conditioning system failure certainly was the final flaw. Without the air-conditioning system working, there was a problem. When the problem starts, all of the other building features are designed to control it, but if they are not working in concert with each other, then the whole system is going to fail.

I think that is what occurred.

Mr. KINDNESS. Thank you very much.

Thank you, Mr. Chairman.

Mr. PREYER. In connection with your statement that the facility should be removed from this area, and assuming that you had an explosion of the worst possible dimensions there—in which all of the vaults could blow up all at once or catch on fire—how far would the toxic gas spread in the area?

Mr. ESTEPP. That would be hard for me to estimate. Depending on how much was involved and what occurred, we could expect these toxic gases to travel several hundred feet without any question.

There are incidents on record involving this type of material where people as far as 300 feet away from a fire or explosion were seriously burned. I think that is an indication that certainly 150 or 200 feet of clearance is not sufficient for a facility operating on a daily basis when there have been incidents of people injured as far away as 300 feet.

Mr. PREYER. Did you evacuate any of the residents during this fire?

Mr. ESTEPP. Yes, sir. We evacuated over 100 families and businesses in the immediate vicinity of the three bunkers.

The wind was traveling in that direction, as you can see from the photos. Directly across Suitland Road from the bunkers, there is a populated areas.

We thought it best at that time to evacuate those areas.

Mr. PREYER. Assuming that you had a deluge sprinkler system, and that the doors were insulated and everything was properly done, are you saying to us that even under optimal conditions nitrate film is so unstable and so dangerous that it should not be located in an area where there is heavy population?

Mr. ESTEPP. I think that is a fair statement; yes, sir, Mr. Chairman.

Mr. PREYER. So what you are saying, really, and your basic answer is to transfer all nitrate film into safety film; is that correct?

Mr. ESTEPP. Yes; and do it away from Suitland, not store those materials there. [Laughter.]

I would follow up that remark, Mr. Chairman, by asking if you would like to have several cases of dynamite stored in your neighborhood. That same comparison could perhaps be made even if it were in nice concrete vaults. I do not think I would want it.

Mr. PREYER. I recognize Mr. Ingram.

Mr. INGRAM. Thank you, Mr. Chairman.

Chief, you propose the theory that the fire was started by self-ignition of the flammable nitrate brought on by a breakdown in the air-conditioning system.

Are you able to prove this theory to the exclusion of all others?

Mr. ESTEPP. No; I do not think we can. I think it would be purely speculative for me to say that we could do that. We feel that cause to be where the facts point the most.

Mr. INGRAM. Could a cigarette have started the fire?

Mr. ESTEPP. It is possible, but again, conditions do not indicate that. In vault 10, presuming that we are talking about where people were working, and if somebody opened the door and dropped a cigarette into one of the vaults, I guess that could be possible.

But if we are concentrating on the areas that workmen were known to have been in, I think conditions would have been different had a cigarette been dropped into these materials.

Mr. INGRAM. You speculate that the fire may have started in vault 8. Was the door to that vault open or closed?

Mr. ESTEPP. We do not know. When Mrs. Ward looked down the corridor, she was about 50 feet away from the area that was involved. She said that her view was blocked by opened vault doors.

However, we feel that probably the fire started in vault 8, and that the door was most likely closed.

Mr. INGRAM. Your findings seem to go well beyond the GSA fire investigating committee in presenting facts and theories.

Were you asked to make your findings available to the GSA committee?

Mr. ESTEPP. We had a meeting with them and, according to Lieutenant Malberg, who was present—and that is the reason he is here today—the committee came in with a theory that apparently was determined before that meeting and they did not want to be confused with the facts.

Mr. INGRAM. Did you see your investigation at odds or antagonistic with GSA's committee investigation, which may have been for different purposes?

Mr. ESTEPP. I think our investigation is at odds with their investigation. I think they have made a cursory investigation, and they have slipped over some important points and apparently zeroed in on one theory from the very beginning.

I do not think that is a good way to approach an investigation, that is, to have one thought in your mind and exclude all others.

Mr. INGRAM. What you are saying, then, is that there was not a working relationship between you and the GSA—

Mr. ESTEPP. Lieutenant Malberg could better express that, but I think it is safe to say that the kind of working relationship, where people exchange ideas and facts and sit down and come to some consensus, was not present.

Mr. INGRAM. The film vault out at the Suitland facility is small when compared to the main Suitland Records Center, which houses most of the documents from the Vietnam war and priceless historical records relating to our Government.

If there were a fire there tomorrow at the main Suitland Records Center, involving millions of paper records stored there, would the members of your department be familiar with the records center? Would you know precisely how to fight that fire?

Mr. ESTEPP. I think they would certainly know how to handle a fire involving those materials. The preservation of the materials is not going to be uppermost in our minds. Our minds are going to be geared toward rescue, evacuation of building occupants, trying to save the general structure if we can, and, certainly, firefighter safety.

If we can save these records we would certainly attempt to do that. We have preplanned that facility and we are aware of most of the conditions that are there. I am not certain we know all of the documents that are contained there.

Again, there is very little information that has flowed from those people concerning what is onsite.

Mr. INGRAM. That is the point I was trying to get at; that is, whether or not you are aware, for example, if the Records Center is in compliance with the county fire codes or the GSA fire codes.

Mr. ESTEPP. We would not have inspected the entire building. We avail ourselves to the primary fire protection features of the building, the siamese connections, where the hydrants are located, and how many people are inside. We would not be making full-fledged inspections of those facilities.

Mr. INGRAM. Thank you.

Thank you, Mr. Chairman.

Mr. PREYER. Mr. Evans?

Mr. EVANS. Thank you, Mr. Chairman.

Have you examined the GSA fire code?

Mr. ESTEPP. I am not familiar with the GSA fire code, but they make reference generally to the same standards that are used universally throughout the fire service.

Mr. EVANS. That is what I wanted to know.

Mr. ESTEPP. I think standard No. 40 is the same standard that they were attempting to apply as it relates to those bunkers.

Mr. EVANS. Do you think those bunkers were in compliance with that standard?

Mr. ESTEPP. No, sir, they were not.

Mr. EVANS. Thank you, Mr. Chairman.

Mr. PREYER. Mr. Morr?

Mr. MORR. Thank you, Mr. Chairman.

Chief, are you familiar with how the film that was not damaged in the fire was handled after the fire?

Mr. ESTEPP. I am familiar with some of it. Apparently they removed a lot of the material from that bunker. I would imagine they put some of it into other bunkers, but also they apparently brought in a trailer to store much of the nitrate film onsite. They moved it further away, further back into the complex, but we had a little bit of a problem with that particular storage facility also.

It was a refrigerated truck. The film was put inside. It was rather hot. We were asked on a couple of occasions to go down and cool the truck down because the system had broken down inside the trailer. There was even an attempt made to take it offsite to have the refrigeration fixed. We just thought that would be too dangerous to attempt.

I believe that is where the bulk of the film was being stored until recently.

Mr. MORR. Do you know how long it was stored in that refrigerated truck?

Mr. ESTEPP. For several weeks, I know that. According to Lieutenant Malberg, I think it was a couple of months.

In their behalf, let me say this. They communicated with us regarding that particular unit. I think they were on the right track by asking us to come down and cool it down, but we could not concur in driving that over the highway with that amount of film in it.

Mr. MORR. To your knowledge, was the truck secured or inspected?

Mr. ESTEPP. From what I am told, a television reporter following up the fire went down and found the site unchallenged in terms of his being able to get close to it and found the vehicle unlocked.

Mr. MORR. How close was the truck in proximity to other buildings?

Mr. ESTEPP. I am not certain the photograph we have helps with that. It was toward the Records Center building. It was a good distance away from the bunkers in an open area. There was a much better attempt to put it in a safer area.

[Photo shown.]

Mr. ESTEPP. They moved it back several hundred feet.

Mr. MORR. I have one other question that occurred to me.

You mentioned that the pumpers were ordered to back away from the unit, that it was done in haste, and that at least one line was severed.

Would it have been possible to move those trucks back, connect more hose, and continue to pump into the siamese hookup?

Mr. ESTEPP. I think at that stage of the game that pumping into that siamese was a futile effort. It would have served no purpose because the major damage had been done.

Mr. MORR. Thank you.

Thank you, Mr. Chairman.

Mr. PREYER. Mr. Kindness?

Mr. KINDNESS. There is always the advantage of hindsight, of course, but there has not been any mention made of what would usually be required in a circumstance like this where some sort of work is being done in a building that houses flammable material.

I would tend to reach the conclusion, up until this point, that it would have been wise to remove those materials from the building where the alteration work was being done and stored elsewhere temporarily until the work was completed.

Would this sort of procedure be required under GSA's code, or Prince Georges County code, or the Maryland fire code?

Mr. ESTEPP. Yes. Certainly we would not have allowed something that hazardous. First of all, we would not have allowed the building's fire protection to be altered without consulting us and without our approving some type of means to provide for protection, or requiring that the materials be removed.

There is no way, in my opinion, that that film should have been left in the vault under those conditions.

Mr. KINDNESS. Thank you.

Thank you, Mr. Chairman.

Mr. PREYER. I have one final question. I would like to ask your air-conditioning expert a question.

Do you concur with the statements that have been made about the air-conditioning failure? Or do you wish to qualify that in any way?

Mr. CROSS. There is no doubt that the system was not functioning, at least on the day of the fire.

As to what temperature conditions existed in the vault, that is strictly speculation. It is possible that the vault temperatures were elevated to a point where it may have been in the 80-degree or 90-degree range.

Mr. PREYER. That is possible, but there is no way we can know?

Mr. CROSS. That is correct, Mr. Chairman.

Mr. ESTEPP. Mr. Preyer, if I might, let me add this.

Again, probably the vault temperature, once it had gone above a certain degree Fahrenheit, was a problem. Decomposition was occurring.

But we again are speculating that the film self-ignited, meaning that it generated its own heat in a contained can. You probably did not need an outside source of temperature in the range of 100 degrees. It was producing its own heat that elevated it to that level.

Mr. INGRAM. What is the flash point of the nitrate film?

Mr. ESTEPP. If it is brand new, the flash point would probably be close to ignition temperature, which would be in the range of 300 degrees. It could be as low as 105 degrees, or even lower, with unstable nitrate film.

Mr. INGRAM. So you are suggesting that, if the temperature in the vault had reached 105 degrees, the deteriorating film could have self-ignited?

Mr. ESTEPP. There is no question about it. In fact, I am saying that could have occurred with temperatures in excess of even 70 degrees, with the generation of its own heat and oxygen that it fed upon itself and generated its own heat inside that can. You did not need an outside source, although certainly that did not help the situation.

Mr. INGRAM. As best as we can determine, that was the cause of the 1977 fire, this self-ignition?

Mr. ESTEPP. I think GSA indicates they felt it was self-ignition and the minority report indicates that possibility even exists in the 1978 fire, that is, that perhaps conditions were even the same.

Mr. INGRAM. Thank you.

Mr. PREYER. Chief, we appreciate the presence of you and your colleagues. This has been very helpful.

Our next witness is Dr. James B. Rhoads. I would like to ask him if he would allow us to present the following witnesses out of order, inasmuch as this has gone a little longer and there are some scheduling problems.

With Dr. Rhoads' consent, we would like to call a panel of two witnesses at this time.

One is Mr. George Stevens, Jr., the director of the American Film Institute. He has given us a lot of pleasure from his various activities at the Kennedy Center, including his productions, such as the "Tribute to Premier Hsiao Ping," which was a magnificent evening.

Our other member of the panel is Miss Lillian Gish, who is a great American actress and who is also an expert on film restoration and has lectured and talked around the country on that subject.

We respect her very much as an actress. Today we are interested in her other area of expertise—film restoration.

Mr. Stevens and Miss Gish, would you please come forward.

Miss GISH. I have been at the New York airport since 8 o'clock this morning trying to get here. I must apologize, Mr. Chairman.

Mr. PREYER. We appreciate even more your being here as a result. I do not know how you wish to proceed. Would you like Miss Gish to proceed, Mr. Stevens?

Mr. STEVENS. As you please.

Miss GISH. Since I have not been here to hear you, might it be better to ask me questions which I would be delighted to answer, if I can, intelligently, I hope.

Mr. PREYER. I am sure they will be intelligent answers.

Perhaps we should start, then, with Mr. Stevens and then we will go to the questions.

#### STATEMENT OF GEORGE STEVENS, JR., DIRECTOR, THE AMERICAN FILM INSTITUTE

Mr. STEVENS. Thank you, Mr. Chairman.

I have a statement, but I think in view of the substantial amount of territory we wish to cover, if it is agreeable to you, I will submit my prepared statement for the record.

I will make some summary remarks. With my statement, I will also submit for the record a report prepared for the American Film Institute last year by William T. Murphy of the National Archives and

Records Service, which relate to a national program for the preservation of newsreel materials.

[See app. 8.]

Mr. PREYER. Without objection, your prepared statement and its enclosures, will be inserted in the record at this point.

[Mr. Stevens' prepared statement follows:]

STATEMENT OF GEORGE STEVENS, JR.  
DIRECTOR, THE AMERICAN FILM INSTITUTE  
before  
HOUSE GOVERNMENT INFORMATION AND  
INDIVIDUAL RIGHTS SUBCOMMITTEE

Tuesday, June 19, 1979

One of the most remarkable events in Washington in recent times was the exhibition at the National Gallery of Art of the artifacts from the tomb of King Tutankhamen. Americans had the opportunity to look into a world that existed over 5,000 years ago and to gain a vivid impression of the civilization of ancient Egypt. The most vivid record of life in America in the first half of the century was recorded on motion picture film. Tens of thousands of movies and thousands of hours of newsreels presented for the first time a sound and picture image of a great nation and its people.

The purpose of these Congressional hearings is to determine if that film record of our civilization is worth preserving. American archivists and film scholars have addressed this question for many years and based on their studies and records I am pleased to be here to urge that we as a nation give a much higher priority to the preservation of these unique records of American life.

When any one of us reflects on recent American history how greatly our perceptions would be altered had we never been able to see a newsreel of Franklin Roosevelt's Day of Infamy speech presented to Congress in December of 1941, or to recall our vision of the memorable footage of the air battles of World War I, the Normandy Invasion from World War II and the vivid filmed impressions of Americans such as Charles Lindbergh, Woodrow Wilson, Theodore Roosevelt, Marian Anderson and Babe Ruth.

The visual record accumulated in newsreels dating from the time of Edison's first experiment with motion picture photography and the remarkable cultural record contained in the movies which have, since the turn of the last century,

been the major democratic art -- represent together an incomparable record of a nation.

Preserving this important record has been central to the Film Institute's purpose since the time of its creation. The announcement in June of 1967 by the National Endowment for the Arts of the founding of the American Film Institute stated the mandate of the Film Institute with regard to preservation.

"Preservation and cataloging of films is a task which lies at the heart of the Film Institute's purpose. It is as important to conserve as to create, and the founders wish emphatically to bring attention, as others have before, to the necessity of preserving this Nation's film heritage."

This statement of purpose is still our guide. Our concern touches the entire spectrum of American Filmmaking. This program is limited by money, but our perception of its responsibilities is not. Our work is to assure that a broad cross section of the American film heritage is safeguarded properly in archives, and ultimately preserved. This will assure that future generations will be able to view, study, and enjoy the creative efforts that have gone into film and television.

In 1967, the principal institutions holding "nitrate" films -- the Library of Congress, the National Archives, the International Museum of Photography at George Eastman House, the Museum of Modern Art and the UCLA Film Archives -- held about 70 million feet of nitrate film needing preservation. The total preservation expenditures by all of these institutions in that year was no more than \$150,000.

Since then, due in large part to the work of the AFI preservation program with funding support from the National Endowment for the Arts, over 4.6 million dollars in preservation funding has been administered by the AFI. The total of Federal and private expenditures since 1967 is 11.2 million dollars. This has enabled the preservation of about 42 million feet of nitrate, or roughly

11,000 motion pictures. The annual expenditure rate is now over 2.5 million dollars, 15 times that of 1967.

The AFI program, awards grants to help organizations restore, preserve and catalog films of artistic or cultural value. Grants have been awarded to large institutions such as the Museum of Modern Art in New York and the International Museum of Photography in Rochester, as well as to smaller institutions such as the Oregon Historical Society in Portland, the American Jewish Historical Society in Boston, and the Center for Southern Folklore in Memphis, Tennessee. In an effort to prevent a future crisis with color film as severe as the present nitrate crisis, small research grants will be awarded in the coming year to study the application of laser holography to color preservation.

After fifty years of archival neglect, our priority in 1967 was the acquisition and safeguarding of nitrate films. Today, there are more than 14,000 films in the AFI Collection at the Library of Congress, and thousands of other films have been acquired by the other major archives.

One of my favorite search and rescue stories involves John Ford's 1939 classic, STAGECOACH, starring John Wayne and made by an independent producer. This film was high on our first priority list of endangered films, but we were unable to locate good 35mm material for preservation anywhere, until we discovered that the Duke himself had kept a print in his personal collection. Wayne generously funded a preservation negative and donated it to the Institute for permanent archival retention.

To assure a coordinated national preservation effort, the Film Institute has joined our sister archives and several smaller related institutions in the Film Archives Advisory Committee, which meet four times per year. This group has evolved over the years into an essential forum where the working archivists advise each other of their problems and successes, and set standards, priorities

and objectives for the combined preservation effort. It is through contact such as this that the tasks of preservation are discussed, where the territory is parcelled out and where each archive has assumed a special responsibility for preserving certain parts of American production in order to avoid duplication of effort.

Historically, the private archives, as well as the Library of Congress have concentrated their efforts primarily on the art of film, on the edited narrative works and documentary films. They have been unable to handle the preservation of huge quantities of actuality material which requires a different approach to cataloging and use than does fiction material. The National Archives, as the agency responsible for the preservation of the permanently valuable records of the United States Government, has been acquiring newsreels for preservation, not as official records but as historical source materials complimenting other records. It has been estimated that well over 40% of the newsreels directly relate to subjects of national interest and importance, particularly to the activities of the United States Government and its officials. It is the preservation of these materials which is the point of these hearings.

When historians, and the general public as well, study our times they will get the most vivid insights from documentary, actuality and newsreel footage. How could one fully understand the last 75 years without having seen the film record of great people and great events? These events and these people are vivid in our national memory because they survived on film.

Last year the Film Institute commissioned a study entitled A NATIONAL PROGRAM FOR THE PRESERVATION OF AMERICAN NEWSREELS, by William Murphy at the National Archives. The impetus for this was a desire on the part of the members of the Film Archives Advisory Committee to have solid information and realistic figures on the size and scope of the problem of newsreel preservation.

I am submitting a copy of this report along with my testimony. This study was reviewed by the Film Archives Advisory Committee, and accepted as a basic document for guidance in making decisions regarding this significant portion of our American legacy. Among the key points are:

- Access to records of the past is fundamental to the precepts of a democratic society. The preservation of newsreels will increase opportunities for the study and teaching of American history, and due to the uniqueness of the record, will allow the recreation of the past as a visual form.
- The National Archives, a federal agency, is best equipped to act as a central newsreel depository. The National Archives has forty years of newsreel experience to fall back upon; it already possesses the basis for a national newsreel collection and good working relationships with the newsreel owners.
- Between 15 to 30 million dollars will be required to preserve endangered newsreels.
- Finally, paper documentation such as the newsreel continuity sheets should be preserved along with the films.

The concensus of the Film Archives Advisory Committee was that the National Archives should take the responsibility for the newsreel preservation effort, that it should drastically expand the scope of its nitrate preservation program to include not just the film presently held by the National Archives, but also the remaining newsreel material held privately.

Mr. Chairman, I would like to encourage the Committee to favorably consider present and future funding requests from the National Archives to deal with the preservation of nitrate film. It is necessary to deal with this problem promptly lest deterioration or the ravages of fire intervene to deny us the opportunity to conserve these unique and priceless records of our nation.

MR. STEVENS. It occurred to me in thinking about this hearing that this flammable material we are talking about, which causes great grief and risk to our firefighters, is material that requires continual custody and care by several of our agencies.

I think back to one of the more exciting events of last year in Washington, which was the National Gallery exhibition of the artifacts and remnants of the tomb of King Tut of Egypt from some 5,000 years ago. What a remarkable window on another civilization that relatively small group of artifacts was.

I think of our own civilization, which has invented this absolutely remarkable device for recording, dramatizing, and illuminating our life and our history.

The King Tut materials have lasted over 5,000 years and here we are struggling, somewhat helplessly, it would seem, in an effort to preserve the record and the culture of our own century.

We are a country with such great resources, technologically and financially, and yet we permit this to happen.

The American Film Institute, which I represent here today, has, since its founding 12 years ago, been concerned with the preservation of what has been recorded on motion picture film and on television tape.

It has been a somewhat frustrating struggle because it is very hard to give strong and active attention to the importance of it.

I think the case was made very well this morning by the brief showing of excerpts from our history as recorded on newsreel film. I think these scenes and Miss Gish's presence, as an artist whose career has spanned this century, are two of the most indelible arguments for the need to preserve this material.

The fact that it is explosive and that it can be compared with dynamite does not argue that we should treat it like waste from the Three Mile Island.

We are talking about what is dangerous material, but it is material that is subject to a very simple solution—that we act as sensible citizens to preserve it.

This is essentially a financial problem.

You will hear testimony from people from the agencies who have this responsibility and who have done, in my view, remarkable work over the years to safeguard and transfer to permanent stock the newsreel material and, in the case of the Library of Congress, what we might call the cultural material, or the artistic material, which comprises much of motion picture films.

As long as I have been alert to the situation, I have heard people advocate rather eloquently the need to deal with it.

It seems the only time it really comes to our consciousness in a serious way is when we have a fire or a catastrophe.

Chief Estep made an excellent argument for the need to deal with this matter as it relates to human life and safety.

I think Miss Gish and I are here to advocate that it is not simply a safety matter, rather, as the chairman suggested a few moments ago, that the simple, direct, and only obvious solution is to appropriate funds so that these materials can be preserved once and for all.

There is a fixed amount of nitrate film that exists in the United States. It is a task that can be undertaken and over a period of years

the nitrate film can be transferred to safety film. We will have accomplished two things.

We will have preserved for future generations the remarkable record of our life and our history of this 20th century. We will have preserved that forever.

And, we will have rid ourselves forever of the problem of the fire hazard and the explosive nature of the material.

I would like to observe this, Mr. Chairman. I say this because I have a feeling that this is of great importance. I hope I do not tread on the toes of other agencies, but it has been my observation that the major agencies of the Government, the Library of Congress and the National Archives, which have the responsibility for this work, were created in the first instance for other purposes.

They both existed before motion picture film came into being. There is a tradition and a priority within those agencies to be concerned with paper. The records of our first 100 years of this country existed primarily on paper until Mr. Edison came along and developed this highly flammable and quite remarkable device called motion picture film.

It seems to me if the Congress could encourage, by appropriation, a more equal and direct financial application to the problem of preserving film, that we would do great service to our country and to these agencies who have the substantial responsibility of safeguarding and preserving this material.

Thank you, Mr. Chairman.

MR. PREYER. Thank you, Mr. Stevens.

That was an eloquent statement.

I would like to ask Miss Gish this.

What is the current status of copies of your films?

Do you know how many are in existence and how many have been lost as victims of time?

#### STATEMENT OF LILLIAN GISH, ACTRESS AND LECTURER

MISS GISH. A great many have been lost, of course. I do not believe they appreciated film and its power, other than the men who gave film its grammar, form, and did the first historic film—I'm referring to D. W. Griffith's "The Birth of a Nation."

It went into towns and played to three times the population across this country and around the world.

It is a power. It is beyond anything I can explain. It has influenced the entire world.

I have been around the world twice in the last 4 years. As you come into port, every city looks like one of ours with tall buildings. We have to have tall buildings, particularly in New York where there is no place to go but up.

But here, around the world, in cities along the eastern coast of Africa, for example, from a distance they look like any of our cities.

Therefore, whatever film is is beyond words. Our great historians from the beginning of time have tried to make history visual with words.

We come along in the 20th century, and we have the visual form of history. Every war and every peace conference and every important

meeting is there. Last night you saw one in Vienna. You have been to Poland and have seen the Pope. Whatever has happened in the world in the last almost 100 years is up there. It is on film. It is visual. It is powerful.

However the world is today, if it is lawless, or if it is wicked, or if it is good or if it is beautiful—film is more than any other thing responsible for that.

It was silent film that the world could understand with music. That was the universal language. We were told this as children when we went into film, not to make fun of this. We were taking the first steps in the universal language predicted in the Bible. Eventually it could bring about the millennium.

I grew up with that. I still believe it, as I see it around the world. All the film cathedrals in every country of the world showed this with 100-piece orchestras. That was a power. We in film must take the responsibility. I hope we will from now on. Our past film is an American invention. It goes beyond any other invention of this century because it is the only one that can get to the minds and hearts of mankind.

MR. PREYER. I wish you had been here early enough to have seen the clippings of some newsreels which were shown this morning. There was a shot of Bess Truman attempting to break a bottle of champagne on the nose of a new aircraft.

She hit it from the right and from the left six or seven times. Then the military man assisting her tried to break it. He could not break it.

There is no way that that picture could have been described in words. It is a perfect example of what you are saying about the power of the visual.

Do you have any rough idea—and perhaps Mr. Stevens does as well—as to just how many of your films have been lost in terms of numbers?

MS. GISH. I made 100 films. I never owned one of them. I was not a businesswoman. I wanted to work with the finest people. I had a life of people and talent rather than money.

I do not own my films, but I can tell you about Charlie Chaplin's films. He has them. He owned them. They are all in rooms under his great house in Vevey, Switzerland.

These rooms have a temperature the same all year round. Some are one and some are another, but it is all scientifically done. I would think that is the way to preserve our newsreels. They are the important things.

You have the Treaty of Versailles in the First World War and the Second World War and the others.

We have had four wars in my century. I do not think one of them really was our war. We had a war that we recorded in "The Birth of a Nation" and other films. That was for us and the belief that we had in our country.

We cannot tell when we will have another, but if we do, then we can look at the record leading up to these wars and the effect of them.

The First World War began, I guess, the decline of the British Empire. The Second concluded that.

It is powerful history. We should preserve the living record of it.

I know it takes money. The first time I ever heard the words "film

library," they were used by a lady called Iris Barry. She was an English lady who had this dream. She had a tiny room up on Madison Avenue. It was her dream to open a film library. Nobody would give her film. She asked me if I could use my influence to get to D. W. Griffith to give her some of his films, which he did. That began the film library at the Museum of Modern Art in New York.

Before that, Rochester House, I believe, preserved film. I do not know about California. I am sure they have since then done things, but I have never lived there so I cannot give you that history.

Did I answer your question?

Mr. PREYER. Yes; very eloquently. In fact, you answered questions which I had not thought to ask you. [Laughter.]

Mr. Stevens, how about the economics of the film industry. I ask this on behalf of the taxpayers of the United States.

Why should not the film industry itself do something about preserving newsreel footage? Is there not some way to make the preservation pay for itself, in part, by using it as educational materials for schools and that sort of thing?

Does the Government have to put up all the money for changing this to safety film, for example?

Mr. STEVENS. I wish the industry would do more. However, certain of the companies have done a great deal in preserving their own film.

There are others that are less active in that regard.

Financially, for a company today that holds a great supply of nitrate film, it is not an economically desirable thing for them to go to the great expense of preserving it.

In other words, the end result does not have income-producing power proportional to what it is going to cost to do it.

So, I fear that puts us in the position of having the Government decide whether what they will not do is of sufficient importance for us to do.

The material that we preserve will not have greater or even substantial revenue-producing effects after it is preserved.

Mr. PREYER. I suppose it also raises the question whether privately held newsreel material ought to be duplicated and maintained in some sort of national archive. I think you suggested this in your written statement.

Miss Gish mentioned the Charlie Chaplin films. We are really talking about a national heritage. I assume, rather than just things that private individuals should be able to control entirely.

If all privately held newsreel film was preserved by the Federal Government, I think you estimated it would cost \$15 to \$30 million; is that right?

Mr. STEVENS. That is privately held and that held by the Government as well.

Mr. PREYER. You mentioned a fixed amount of nitrate film. Are we talking now about just nitrate film?

Mr. STEVENS. Yes.

Mr. PREYER. So, for \$15 to \$30 million, we could preserve all of that newsreel film safely for the future?

Mr. STEVENS. That is my understanding. I would suggest you confirm that with the Archivist, but that is the result of our study.

There are two topics here. They are of equal importance, I believe. There is the newsreel film, which is the responsibility of the National Archives and Records Service. There is also the cultural or motion picture entertainment film. That is the responsibility more directly of the Library of Congress working with sister archives around the country.

They are equally important, in my view. I believe this hearing is more directed toward the National Archives question, probably because of the fire.

A great deal has been done. The Chaplin films, for example, have now been preserved, I believe, almost entirely at the expense of the Chaplin interest.

All of this does not fall upon the Government. The MGM Co. has preserved their films, but there is a substantial amount of nitrate film held also by the Library of Congress.

Although it may not be directly the subject of this hearing, it is the other half of the problem because I fear that one day we will be having the same kind of hearing because of an accident simply because the material is volatile.

The problem is not going to get any better. These films are going to continue to have the corrosive process take place. It would seem to me that if we could set a plan in motion to deal with this problem once and for all at this time, then we could move on to new problems in the 1980's.

Mr. PREYER. I have one final question that I would like to ask Miss Gish.

From your wide experience, do you know what the situation is in foreign countries, so far as newsreel and film preservation goes? What is their attitude toward protecting their heritage?

Ms. GISH. Not definitely, only from observation.

I was taken through a television studio in Japan, and I was told how it began and how they were trying to make it better and preserve what they had.

I also went to Russia, as a guest, in July 1969. They had asked Charlie Chaplin, Mary Pickford, Douglas Fairbanks, and I to come there as guests in 1928. My mother was ill and I could not go. Mary and Douglas went. Chaplin never went. They asked me again 10 years ago. It was during the film festival.

We showed our film "2001," which made me very proud. I thought that was a beautiful example to send to them from us.

Then I was taken to their studio. They ran some of their films which I had never seen, of course.

I had seen "War and Peace" as all of us did when it came here in two 4-hour versions. I saw it in France in French. I saw it about three or four times, but it was their history from a book by Tolstoy.

They give them all of their history. They give them all of their classics. They also show them Russia at its most beautiful in the springtime with fruit trees in bloom with lovely children playing under them and factories looking so lovely you would like to live in them.

Siberia looked like a poem in white. They arouse such pride in their country with their film that I think that is what holds their country

together. Mother Earth and Mother Russia holds them together. They are all devoted to that.

I believe, because of this, that they must take care of their film. They must have the record of all the wars, particularly Leningrad in the 1940's, and the common graves that we were taken out to see.

I believe eventually when two countries are about to have a war that they will have the record of wars in one country versus the record of wars in other countries. They will show them and let the people decide. It could come to that; could it not?

Ms. GISH. It is a living record of the history of every country in the world. They all have their films now. We used to lead the world. Now I think we are way down in the number of films we make as compared to India and Japan and other countries.

Mr. PREYER. Thank you very much.

Mr. Kindness?

Mr. KINDNESS. Thank you, Mr. Chairman.

Mr. Stevens, you mentioned in your statement the future crisis or problem with color film. Would you care to expand on that a bit, please?

Mr. STEVENS. Yes. Color film has an inevitable decay built into it. It is not one of hazard, such as nitrate, but the dyes that make color film deteriorate with time.

Our archivists have been working with the people in other agencies and private archives to try to develop a process that will preserve color film.

Essentially it works this way. The original color film was produced on three separate strips of film for three different colors. Later, the Eastman color process was developed in a single strip of film.

The only sure way to preserve color materials is to make those three color separations and preserve each of them. That is essentially the problem.

Mr. KINDNESS. I certainly want to express my thanks to you, Miss Gish, and to you, Mr. Stevens, for being with us this morning.

Thank you, Mr. Chairman.

Mr. PREYER. Mr. Evans?

Mr. EVANS. I have no questions, Mr. Chairman.

Mr. PREYER. Mr. Drinan?

Mr. DRINAN. I apologize for being late. I have no questions, Mr. Chairman.

Mr. PREYER. I join all of the panel in thanking you, Miss Gish and Mr. Stevens.

I hope you do not have to wait so long to catch your plane back to New York, Miss Gish.

Ms. GISH. I hope you do not think I am a Communist to give them such a good review as that. [Laughter.]

That is from their films. It was like that.

But we took the prize for "2001."

Mr. PREYER. I think your description is fine. I was in Russia at Easter. What comes across strongly is their love of Mother Earth and Mother Russia.

Ms. GISH. Yes.

Mr. PREYER. It is almost like a parent-child relationship. It is very possible.

Ms. GISH. They realize that power and they do it with film.

Mr. PREYER. Films must have had a lot to do with that. Our film at the Air and Space Museum, I think, has some of that effect. It shows what a beautiful country we have. I think it does help in that regard. It fastens that bond.

Ms. GISH. Yes, it is a great power.

Mr. PREYER. Well, we are grateful to you for the pleasure you have given us in your films throughout your great career.

We appreciate all you are doing, Mr. Stevens. We look forward, as we say in North Carolina, that "You will both keep on keeping on." [Laughter.]

Thank you very much for being with us.

Our next witness is Dr. James B. Rhoads, Archivist of the United States.

Because of the shortness of time, I would like to ask you to summarize the highlights of your testimony and your statement.

I also notice that some of your remarks go to the issue of general records preservation at the Archives.

As you know, next Monday the subcommittee will be hearing from the General Accounting Office on its findings about the preservation efforts at the Archives. We will have an opportunity at that time to explore that particular aspect of these hearings in more detail.

Today, we should perhaps confine our testimony to the Suitland fire and the safety programs at the Archives.

I note what Mr. Stevens said about how agencies have done remarkable work over the years in attempting its preservation work. He basically said what you needed was more financial support.

He put you in the proper trajectory there. We are glad to have you at this time.

You may proceed.

**STATEMENT OF DR. JAMES B. RHOADS, ARCHIVIST OF THE UNITED STATES; ACCOMPANIED BY JOHN J. LANDERS, EXECUTIVE DIRECTOR, NATIONAL ARCHIVES AND RECORDS SERVICE; JAMES W. MOORE, DIRECTOR, AUDIOVISUAL ARCHIVES DIVISION, OFFICE OF THE NATIONAL ARCHIVES; AND WILLIAM MURPHY, CHIEF, MOTION PICTURE AND SOUND RECORDING BRANCH, AUDIOVISUAL ARCHIVES DIVISION, OFFICE OF THE NATIONAL ARCHIVES, NATIONAL ARCHIVES AND RECORDS SERVICE**

Dr. RHOADS. Thank you, Mr. Chairman.

It is a pleasure for me to be here, Mr. Chairman. I am grateful to Mr. Stevens or having launched us on that kind of a trajectory. As you say, Mr. Stevens and Miss Gish are a hard act to follow.

I will be happy to touch on some of the highlights of my prepared statement.

First of all, I should introduce the gentlemen who are accompanying me. To my right is Mr. John Landers, Executive Director of the National Archives and Records Service. To my left is Mr. James Moore, Director of the Audiovisual Archives Division in the National Archives, and on his left is William Murphy, who is the Chief of the Motion Picture and Sound Recording Branch.

Thank you for inviting me to testify on a matter of great concern to the National Archives and Records Service, that is, the fire last December 7 in building A, one of our film vault structures at the Federal Center in Suitland, Md.

Archivists feel personally diminished whenever records of value in their custody are damaged or destroyed, and on that unfortunate day, 12.6 million feet of Universal Pictures newsreel footage were lost. The loss was primarily in outtakes—film not used in completed productions—but recent experience tells us that we would have retained from 62 to 68 percent of that footage as archivally valuable, disposing of the rest.

The film lost dated from 1930 to 1951. Portions deemed worthy of further preservation would have been converted from the chemically unstable and flammable nitrate base to safety film. But that was not to be.

What was lost was part of the original 28 million feet of film—17 million feet of nitrate and 11 million feet of safety film—donated by Universal in 1970 and accepted by the National Archives on behalf of the American people for its historical value.

Substantial amounts of the edited Universal releases had already been converted at the time of the fire, and major conversion of the outtakes had been scheduled this year.

I know that this committee is principally concerned today with what the National Archives and Records Service has been doing to preserve its film holdings and to prevent further tragic instances such as that which occurred last December.

But I also know that you are very much interested in what we are doing to preserve all the records in the National Archives: The 1.3 million cubic feet of paper records, the 5 million photographs, 1.6 million maps, 107,000 sound recordings, 9.7 million aerial photographs, and 3,600 reels of ADP tapes—as well as the 85 million feet of motion picture film.

Before I concentrate on film, therefore, let me say a few words about preservation problems generally at the National Archives.

There is no sense in deluding ourselves. The problems are enormous. The National Archives started wrestling with them in 1934 when it came into existence and inherited the Nation's official records which had suffered from 150 years of neglect.

We now estimate that there are some 3 billion items in the National Archives and, like all finite things, they began deteriorating the day they were created. Some need preservation work now, some will need it in 10 years, some in 100 years.

We have been trying to assign priorities and spread our preservation dollars around, but there are never enough funds for all the work that needs doing. It would be desirable, for instance, to deacidify all of the paper records in the National Archives, but we estimate that to do this for the records we will have by the year 2000 would cost about \$1 billion.

To microfilm them would cost several hundred million dollars. That is why we are searching for new technologies to bring costs down: such advances as bulk deacidification of documents and improved automation in microfilming processes. That is why we have made a series of

indepth studies since I became Archivist in 1968 to keep on top of our preservation needs and to set priorities.

One major study in 1969 led to increased funds for the preservation of nontextual records, reflecting our judgment that these records—motion picture films, still pictures, sound recordings, maps, and aerial photographs—require relatively rapid duplication or restoration before their short lifespans end.

Another study in 1976 brought the nontextual records preservation picture—substantially changed through increased accessions—up to date. Last year, deviations in temperature and humidity in the National Archives Building were studied. Now that a major overhaul of our heating and cooling system is in its final phase, we expect improved environmental conditions.

Another extensive study completed last year assessed our total preservation needs against present and anticipated technologies for long-range planning and budget request purposes.

Spending on direct preservation efforts was increased from about \$200,000 a year to about \$1 million a year in 1971 and to \$1.8 million in fiscal year 1978. It will rise to approximately \$2 million in the current fiscal year, about 18 percent of the portion of the NARS budget earmarked for the National Archives.

With preservation funds available from 1969 through last year, NARS has copied 8.7 million feet of motion pictures, and 1.3 million aerial images. During the last 5 years, we have reproduced 17,000 sound recordings, and 300,000 still pictures as part of our nontextual preservation program. Several million units of textual preservation have also been completed.

Our motion picture work included conversion of 2.3 million feet of nitrate motion picture film. Another 3 million feet of motion picture film will be converted in the current fiscal year. This will leave us with 4.7 million feet of nitrate movie film and 32,000 nitrate still pictures to be converted.

Some 2.3 million aerial images require conversion. If we receive the supplemental funds requested we hope to have all the nitrate motion picture footage on safety film by August 1980. The aerials can be completed shortly thereafter but will depend upon when the additional laboratory space becomes available.

Two fires in less than 2 years at our nitrate vaults in Suitland have made it clear that we would have been wiser to spend more of our scarce preservation funds on nitrate conversion in recent years even at the cost of deferring other needed preservation work on badly deteriorating records.

On the other hand, we have stored film in these specially constructed vaults since 1949 and until August 1977 without incident. Based on nearly 30 years of nitrate storage experience, we felt the risk of suffering a severe loss from fire was minimal.

Our nitrate holdings have been kept in two specially constructed buildings, A and C, each containing 27 vaults, in Suitland. A third building, building B, is used for similar purposes by the Library of Congress.

The compartmentalized vaults—each equipped with a blowout panel—were designed to confine any fire to a single vault area.

The first nitrate fire occurred in building C on August 29, 1977. Some 800,000 feet of March of Time outtakes—no edited releases—were lost along with 109 rolls of nitrate aerial film. The aerial film, fortunately, had already been copied on safety film. Also fortunately, the compartmentalized system worked and the fire was confined to only 1 of the 27 vaults.

The ad hoc committee responsible for investigating the fire concluded that the fire was attributable to a combination of excessive heat in the vaults, due to faulty air-conditioning systems, a spell of hot weather for several weeks, and the presence of some 25,000 feet of deteriorating film.

In short, the committee felt conditions favorable to spontaneous combustion of the film were present.

As a result of the committee's recommendations, NARS quickly changed its procedure for the disposal of decomposing and copied film, and installed new safety and security procedures, and a daily temperature monitoring system. New procedures for handling nitrate film were placed in effect, as well as an accelerated film inspection schedule.

Two recommendations were not implemented. Because of a lack of sufficient storage space, film could not be removed from temporary storage on the floors of the vaults in building C and some is still being stored in this manner.

Also, rather than use NARS manpower to administer a test of minimal benefit in providing data on film storage life, it was decided that the manpower could be more effectively used by increasing the rate of conversion and disposal of nitrate film.

With these two exceptions, all of the ad hoc committee's recommendations directed at NARS were carried out.

The Public Buildings Service—PBS—also moved to implement the committee's recommendations concerned with upgrading of the buildings. A sprinkler system was installed in Building C. A sprinkler system paid for by Universal Pictures had been installed in Building A when the collection was accessioned.

A contract covering new air-conditioning and air-handling systems, increased insulation, and humidification controls was awarded by PBS in January 1978. It was during this upgrading work that the second fire broke out on December 7, 1978, destroying some 12.6 million feet of Universal newsreel footage in 20 vaults.

The ad hoc committee investigating this second fire concluded that: "The fire was most likely caused accidentally as a result of activities associated with upgrading the air-conditioning system."

The committee went on to observe that spontaneous ignition of the nitrate film was unlikely "as none of the conditions favorable to spontaneous ignition were present."

Specifically, all of the film had been inspected 30 days before the fire and all decomposing film had been removed and temperature readings for the days preceding and including the day of the fire were 55 degrees or below.

Perhaps as important as the question of cause is the question of why the fire spread so extensively. Although the sprinklers operated properly, the system of compartmentalization broke down. Rather than being confined to the vault of origin, the fire spread to other vaults.

The reasons for the breakdown are alluded to in the ad hoc committees's report.

I am not an expert in these matters and cannot speak authoritatively on the reason for the extensive damage to so many vaults. However, a reading of the report indicates that it may have been a combination of too many open or unlatched doors when the fire began, and increased ventilation resulting from the firefighters' efforts.

At this point, Mr. Chairman, I think we should say that we do not blame the firemen for their zealous efforts. In the usual firefighters' tradition, they fought the blaze to the best of their ability. We thank them for that. They were careful to see that no lives were lost, at the risk of their own.

I can say that, based on extensive tests on the combustibility of nitrate film, which NARS conducted jointly with the Navy at its Indian Head, Md., facility after the fire, I disagree with the conclusion of the minority report, written by one member of the committee that:

It is probable that the December 1978 fire at the Suitland film vaults was caused by conditions rather similar to those that caused the August 1977 fire. That is, deteriorating film being subjected to temperatures that were too warm.

The quote continues:

In the second instance, however, spontaneous combustion was likely precipitated by heat-producing activities of the workmen who were installing a new air-conditioning system.

Evidence from the NARS-Navy test rules out this possibility. The recently-received report of these tests is now being edited, and can be made available within the next several days.

As a result of this most recent fire, we are taking all steps possible to protect the remaining film until it can be converted, and to convert it as quickly as funds and capacity allow.

Specifically, we have added personnel to the conversion program and expanded the laboratory workday to include Saturdays, bringing our annual production capability to approximately 4 million feet. Advance notice and the presence of a GSA contract supervisor each day will be required when a contractor is working on the film vaults.

We are enforcing the rule that only one vault door may be opened at a time and that all doors must be closed unless someone is working in a vault. We have required that a fire plan be coordinated with the local fire department and that all film be removed from a vault before any hazardous work is performed by a contractor.

We also have reached agreement with PBS that NARS officials will review all specifications dealing with alterations to the buildings or equipment before a contract is let.

In conjunction with PBS, we are investigating the possibility of converting Building A to a film laboratory to enable us to expand our capacity and to eliminate the necessity of taking nitrate film into the Archives Building.

Once the nitrate is converted, we will use the laboratory for needed expansion space for reproducing safety film, as well as for other processes for which we need additional laboratory space. Most of the unfinished improvements on Building C will be completed late this year.

Because of the short time in which we will need to occupy Building C for storage, however, it has been determined to forgo the new air-conditioning system and instead to repair the present system and install standby compressors.

As I mentioned earlier, we have requested funds that would enable us to complete our nitrate conversion process in as little as 2 years after completion of additional laboratory facilities and, thus, substantially reduce the risk of further loss.

Our estimates, however, include two significant variables. First, based on our current processing, we are disposing of approximately 40 percent of the newsreel material. This percentage is subject to change, however, as we encounter new time periods and subject areas.

Second, our new process for converting aerial film has yet to be thoroughly tested and something unforeseen may necessitate adjustment in the process or a reduction in our projected rate of conversion.

Without any increase in funds, the nitrate conversion program would be lengthened considerably.

The remaining motion picture film is comprised of the March of Time and Universal newsreel collections—5.6 million feet and 2.1 million feet respectively—the aerial photographs are those accessioned from several Federal agencies, and the still-picture collection records are from the Army Signal Corps, Navy, Work Projects Administration, and the Department of Agriculture.

Excluding the Universal and March of Time collections received between 1971 and 1975, the majority of the nitrate motion picture film accessioned into the Archives resulted from small donations of two to five items, or, like the Ford film collection donated in 1964, were converted with funds provided by the donor organization or agency.

By the time the 1969 study on nontextual preservation was prepared, NARS had only 3,000 reels—2.4 million feet—of nitrate film requiring conversion.

Our aerial film was accessioned during the years 1962 through 1977 and although most had been copied on safety film by the time of the December 7, 1978, fire, the original had not been disposed of and requires refilming.

This second conversion is required because the technology available to us at the time of the initial conversion did not provide a satisfactory image. This is particularly true for some of our user groups—specifically those researchers using the photographs in connection with archeological endeavors who have recently expressed interest in these collections.

We were aware of the limitations of the copying process and resulting product at the time we began the conversion process, but we were also working under the assumption that NARS would retain indefinitely the nitrate original for purposes of making sharp reproductions—the copy being made only as a safety or preservation copy in case the originals were accidentally destroyed.

This was because some image loss in copying is unavoidable, no matter how advanced the technology or how carefully applied. NARS, however, changed its policy and ordered the destruction of the nitrate originals as a safety measure after the August 1977 fire.

We now plan to convert the aerial images to 105-mm film rather than 70 mm. We will be utilizing a recently developed process that we hope will enable us to convert the images with acceptable clarity for approximately one-fourth the cost of a 1-to-1 conversion—the only previously available technology that would have provided an acceptable reproduction image. If this procedure is not satisfactory, we may have to reconsider a 1-to-1 conversion.

Your committee also has expressed interest in the policies and practices of the National Archives in accepting film from public agencies and private sources, and in our capability to preserve the film we acquire.

I would like first to comment on the March of Time and Universal collections specifically, and newsreels generally. I believe these collections are representative of the types of materials NARS has been and would be willing to accession.

These two collections were targets of the Comptroller General's report of a year ago on the Government's care of motion picture holdings which criticized our film accessioning policies.

The Archives Act of 1934 authorized the National Archives “\* \* \* to accept, store, and preserve motion picture films and sound recordings pertaining to and illustrative of historical activities of the United States.”

NARS' interest in the preservation of newsreels stems from this act and our active accessioning policies of the 1930's and 1940's. The Federal Records Act of 1950, although less specific in its authorizing language, was never interpreted in principle or practice to exclude non-Federal films of historical value, and our policy of accessioning newsreels obviously continued after passage of that act.

The largest accession of newsreels by NARS was the Universal collection, comprised of some 17 million feet of nitrate film and 11 million feet of acetate film. Agreement for the transfer was made in November 1970, and the transfers of film took place from 1971 through 1974. These newsreels cover the period from 1929 through 1967.

Other newsreels acquired by NARS include: Paramount News, 1940-57, accessioned between 1941 and 1957; Fox Movietone, 1957-63, accessioned between 1957 and 1963; News of the Day, 1963-67, accessioned between 1964 and 1967; and March of Time, covering the years 1935-51, accessioned in 1975.

With the exception of the March of Time and Universal collections, the accessions were composed solely of theater releases. Paramount newsreels from the nitrate period were converted to safety film shortly after transfer to NARS.

The NARS efforts to preserve American newsreels are particularly important because of their value in studying American history and culture, and in showing the interaction of the Government with its citizens. The rapid disintegration of newsreel negatives still held in the private sector without any provision for preservation underlines the need for a Federal effort.

Since Government and the activities of public officials are by definition newsworthy, much of the newsreel footage relates to the activities of the Federal Government. Visual documentation of most of these activities is not duplicated in records created by the Federal Government.

For example, the Government did not usually film the speeches of Presidents. Newsreel cameramen, on the other hand, followed the Presidents and filmed speeches, campaigns, and conventions.

During the 1930's there were numerous stories about U.S. relations with other countries and the developing crises in Europe and Asia. The newsreels had stories on the introduction of new military technology, especially in aviation, and covered congressional joint sessions, House and Senate hearings, and White House ceremonies.

Newsreels also ran many stories which, although not related directly to the activities of the Federal Government, are important for an understanding of this country's historical development.

These include stories on labor strikes, conditions during the Great Depression, movements in foreign countries—such as Germany and Italy in the year immediately preceding the outbreak of World War II—technological change, scientific achievement, ethnic and racial minorities in the United States, the changing perceptions of women in social and vocational roles, activities of famous and infamous personalities, and the performing arts and communications.

It is true, on the other hand, that newsreels contain much ephemera since they typically mixed light entertainment with journalism. Hence, there are numerous stories concerned with sports events, human interest situations, disasters, the weather, beauty contests, fashion shows, and stunts and oddities of limited interest.

During the negotiations for the deposit of the Universal Newsreel Library, as well as for the March of Time, the donors would not consider dividing collections at the place of storage to separate footage of lasting value from the ephemeral, although it was agreed that non-valuable items would not be duplicated as NARS worked through the footage when stored in its vaults.

NARS was fully aware that much of the footage did not warrant permanent preservation, and for this reason we indicated at the time of accession that we would select for preservation only those portions eventually evaluated as having historical significance.

The newsreel volumes—that is, the edited releases—were given first priority for preservation and are being preserved in their totality. This is because historians have recognized that the value of newsreels is based on unique pictorial information and editorial comment.

This dual value is particularly important for the pretelevision era in which newsreels played a significant role in formulating public perceptions of national and international issues. Also, organic series deserve to be preserved in the original order as they were seen by their contemporary audiences.

Predominance of outtakes does not lessen a collection's research value. They offer the possibility of access to significant historical footage which was eliminated from the final release versions during the editing process, and, consequently, was not seen by contemporary audiences. The research value of outtakes may be briefly summarized.

They represent relatively unadulterated film evidence of past events.

They show events in far greater detail than was permitted in the brief edited stories.

They serve as a basis for evaluating the biases of the newsreel editors in selecting shots for a finished story.

Newsreel footage is used extensively by researchers—by individual scholars as well as by numerous television and film producers. We believe that the footage is important to an understanding of our recent history and to a better comprehension of the Federal Government's activities documented in its paper records.

Audiovisual records aid in the study of written records. Since the Government did not systematically record events in an audiovisual medium, we believe NARS, as the repository of all the Government's permanently valuable records documenting its organization, functions, and activities, is the most logical repository for privately produced audiovisual materials reflecting or further illuminating these activities.

I might add that we have developed a 10-year plan for the preservation needs of the audiovisual records in our custody.

In respect to film accessioned from Government agencies, the major determination of the archival value of motion picture film is made during the initial appraisal of the records before they are transferred to NARS. Records which have already been accessioned into NARS are systematically inspected for physical deterioration, and reevaluated for continued retention, when reviewed for cataloging. During any of these procedures, film footage may be determined to be non-archival and set-aside for disposal.

The Government-wide standard for determining the retention period and archival value of film is General Records Schedule 21—GRS-21. Broad in scope, it is intended to complement approved agency records schedules. Records that cannot be destroyed in accordance with GRS-21 must be described on an agency records schedule and submitted to NARS for appraisal.

When GRS-21 was being drafted in 1976, all major film producing agencies of the Federal Government were consulted and indicated that the schedule and the accompanying explanatory notes would be useful in assisting them in records disposition.

The schedule had been in effect for a year and a half when the GAO report was issued. As a result of that report, NARS began a review of the schedule and is currently receiving comments from agency records officers on the application and adequacy of GRS-21. Alterations in GRS-21 will be made on the basis of these comments and our own staff members' reevaluations of the schedule.

We have also undertaken a review of our criteria for accessioning non-Federal records. In the past we have interpreted our accessioning authority broadly and have obtained some invaluable film records.

However, in the interest of preserving the records already in our custody, we have begun to review our policies on accepting non-Federal records.

In regard to our capability to preserve the film we acquire, NARS has developed a 10-year plan for the preservation needs of the audiovisual records in its custody. This 10-year plan details cost estimates for a comprehensive film inspection program, and if additional funds become available, the program will be promptly implemented.

At the present time, however, because of staff and budget limitations, the conversion of nitrate film must take precedence over the implementation of a comprehensive inspection program for safety film.

Integral to the 10-year program is an effort to insure that Federal agencies manage the disposition of their records in accordance with General Records Schedule 21 or approved agency record schedules, and that they manage and transfer audiovisual records to NARS in accordance with the provisions of GSA regulations.

Current regulations require that agencies transmit original negatives, master positives, and projection prints as well as unedited out-takes to the National Archives.

In the future, if NARS can receive in the original accession what it is now paying to produce itself for past accessions; that is, enough copies of a film to provide efficient reference and reproduction service while also preserving the film, then we anticipate a substantial decrease in preservation costs after completion of the 10-year program.

In addition to the nitrate conversion, I should point out that there are other pressing preservation needs. These include copying very valuable glass and nitrate negatives in our still picture holdings, and inspection and reproduction of sound recording discs.

Without additional funds, however, this accelerated nontextural preservation cannot be implemented and our efforts to protect these records from further deterioration will be seriously impaired.

Storage conditions, although still certainly not ideal, will improve greatly with the completion of the second major portion of the Archives Building cooling and air-handling systems expected to be completed this year.

Another \$750,000 has been programed by PBS for fiscal year 1980 to fine tune the system and to provide for automatic monitoring devices to replace the current daily manual recordings of temperature and humidity.

We believe these changes will insure proper environmental control for our black and white films. We are also considering the continued utilization of building C for safety film storage, after completion of the nitrate conversion program, to relieve overcrowding in the Archives Building.

The storage of color film presents unique problems, since it should be stored at approximately 35° F. We are exploring the possibility of including a 6,000-square-foot refrigerator vault in a facility we plan to lease in Alexandria, Va.

The vault would have a capacity of 12,000 cubic feet and would hold approximately 160,000 reels of film. NARS would utilize 8,000 cubic feet and the remainder would be available to other agencies for film appraised as permanently valuable.

Finally, to insure that agencies properly manage their audiovisual records, including motion picture films, NARS has accelerated its evaluation of agencies, audiovisual records and management programs.

During fiscal year 1979, several agencies which are large producers of audiovisuals, are being surveyed or evaluated. These agencies include the Department of Health, Education, and Welfare; the Department of Transportation, and the Veterans' Administration.

During fiscal year 1978, evaluations of the Environmental Protection Agency, the Department of the Navy, and the Office of the Secretary of Defense were completed.

In summary, we have been and are making progress in preserving our film and other nontextual holdings, in spite of limited funds and a large backlog of preservation work to be done.

We, too, hope that improvements in the program can be realized but, to a great extent, this will depend upon the availability of additional resources.

Thank you.

Mr. PREYER. Thank you very much, Dr. Rhoads, for your testimony.

You mentioned the building was designed to confine a blaze to a single building. Was this building designed with the idea in mind of storing film in it?

Dr. RHOADS. Yes, sir, it was.

Mr. PREYER. When the building was located where it is, was it an isolated area or was it relatively populated as it is today?

Dr. RHOADS. I was not in Washington in 1949, Mr. Chairman. I suspect there were some other Federal buildings on the Federal complex at Suitland at that time. A lot of the commercial and residential areas that are now, I think we would all agree, too close to our film vaults had not, as yet, been built.

Mr. KINDNESS. Mr. Chairman, I was in Washington at that time. That was in the countryside. [Laughter.]

Mr. PREYER. You mentioned some recent tests that apparently the Navy had run on the combustibility of film. Was there anything you learned from those tests that would either back up or contradict Chief Estep's testimony that this kind of film is like having dynamite in the neighborhood.

Dr. RHOADS. There is no doubt that once this film catches on fire it behaves in a very volatile way.

The tests at Indian Head, however, did demonstrate that nitrate film in good condition was very difficult to ignite.

A number of tests took place. There were tests that dropped film from a height of 40 feet, both flat and on its edge. There were attempts made to start fires with electrical currents through the film cans.

There were tests that put open flame underneath the film cans. There were friction tests. There was quite a panoply of tests which were performed.

These tests demonstrated, to my satisfaction, that film in good condition must reach a temperature of at least 240 degrees Fahrenheit before ignition takes place. Film in the vaults that burned had been inspected no earlier than 30 days before the fire. The film that we found to be decomposing had been removed. We think it is unlikely that there was any seriously degraded film in the vaults at that time.

The ambient temperature, the outdoor temperature, was only about 55 degrees on that day. There had been relatively cool weather for several weeks beforehand.

Mr. PREYER. So the study, you think, bolsters your suggestion or the suggestion of the PBS committee that, rather than igniting spontaneously, it might have been caused accidentally; is that right?

Dr. RHOADS. I cannot be certain any more than I think anyone else can be certain, but I think the evidence suggests that it was ignited accidentally and not through spontaneous combustion.

Mr. PREYER. How much nitrate film does the Archives have left to convert to safety film? I think we all agree that is one final solution to the problem.

Dr. RHOADS. Yes; there is no question that is the only final solution.

We have approximately 13 million running feet of nitrate motion picture film in our custody. Most of that is newsreel footage.

In our efforts to convert that film, we find that something in the vicinity of 60 percent of the outtakes meet our criteria for retention and for copying.

The 13 million feet should be reduced by a factor of perhaps 40 percent which leaves us with roughly 7 million feet to convert.

Mr. PREYER. Is that the amount that you estimate you could complete converting in 2 years if you had sufficient funds?

Dr. RHOADS. Yes, sir. We are going to complete converting that in 2 years whether we are given additional money or not. We have reprogrammed funds from other activities so we can get that problem behind us.

The motion picture conversion, we are confident, will be completed by the fall of 1980.

We still have a substantial amount of nitrate aerial photography that remains, however.

Mr. PREYER. If you had unlimited funds—let us dream a little bit—could you complete it in a much quicker time than 2 years, or is that amount of time necessary because of the techniques?

Dr. RHOADS. Because of the techniques involved, I am inclined to think that we would not be able to do a great deal better than the 2-year conversion period.

Mr. PREYER. George Stevens suggested all old newsreels that are now privately held in the country should be turned over to you.

Do you have a horseback estimate as to how large a volume that would be?

Dr. RHOADS. I have read the same reports that Mr. Stevens referred to. I do not have any independent opinion as to whether that is the right figure or not.

Mr. PREYER. Would you accept that material if he was able to gather it together for you? Let us say it is another 14 million feet.

Dr. RHOADS. I think that these films, or at least certain portions of them are undoubtedly worthy of preservation. The National Archives probably more than any institution in this country, is a recognized center for storage of newsreel film.

However, I must say that I would be very reluctant to accept it without a clear and firm indication that we had sufficient resources to convert it in a very short period of time.

Mr. PREYER. Incidentally, in that connection, I understand when you accepted this film from Universal Pictures, that it was agreed they would install a deluge sprinkler system; am I right?

Dr. RHOADS. You are correct, sir, yes.

Mr. PREYER. Why was that never done?

Dr. RHOADS. Perhaps one of my colleagues can supplement what I have to say on that, Mr. Chairman, but I think we were under the impression that the sprinkler system which was installed did meet the specifications that were implied in the gift.

Mr. LANDERS. I think that is correct, Mr. Chairman. My understanding was that the sprinkler system that had been installed was, in fact, a deluge system; but it was not, obviously.

Mr. PREYER. As I understand it, it was described as a deluge system. It had some aspects of a deluge system, but in fact it had the closed valves.

Dr. RHOADS. It had the wrong kind of heads, yes.

Mr. PREYER. Yes.

This made it, in effect, a nondeluge sprinkler system.

Going back to the nitrate film conversion project, I understand that the Library of Congress is planning a new film laboratory at Wright Patterson Air Force Base in Ohio for the purpose of converting nitrate film.

Can the Archives use this facility? Would it be in existence soon enough? I understand they can convert nitrate film to safety film for 25 cents a foot. I wonder if you can do it that economically and also I wonder why you would not use the Library of Congress facility.

Dr. RHOADS. Mr. Chairman, the figure that you cited as the Library of Congress cost per foot is essentially the same as the figure for our own program.

It is my understanding that that facility will not be in full operation at Dayton, Ohio, until sometime in the summer of 1980 and by the fall of 1980 we think we are going to have our motion pictures all converted.

Mr. PREYER. Thank you.

[Subcommittee note: The quotation of \$0.25 a foot is in error. Actually, the nitrate film conversion cost for the Library of Congress for fiscal year 1978 was \$0.1567 per foot. This figure does not include complete foot-by-foot inspection costs. The laboratory conversion cost for National Archives is \$0.18 per foot, and rises to \$0.22 per foot when inspection costs are included.]

Mr. PREYER. Mr. Kindness, do you have any questions?

Mr. KINDNESS. Thank you, Mr. Chairman.

Dr. Rhoads, of course, combustion is an archivist's nightmare. We all recognize that.

What written procedures and standards relating to the conduct of work specifically at Suitland and at other facilities of a similar nature are there? I am wondering whether we might just make that a part of the record.

Mr. RHOADS. Yes, we have such procedures for the work at Suitland. We would be happy to submit that for the record.

Mr. KINDNESS. Thank you.

Mr. PREYER. Without objection, so ordered.

[The material follows:]

October 17, 1977

NRVM

Safety Procedures for Suitland Nitrate Vaults and for Handling Nitrate Film

As a result of a meeting on September 23, 1977, involving ND, NH, NRV, NAS, etc., it was agreed that NRV should assume full responsibility for the security of Buildings A and C, Suitland Nitrate Vaults. Building B remains under the supervision of the Library of Congress. These buildings house archival originals made of nitrocellulose film which is chemically unstable and highly flammable. To ensure the safety of all personnel who are assigned to these buildings and to safeguard archival originals from the risk of fire the enclosed regulations must be strictly observed. These regulations also pertain to the handling of nitrate film in the National Archives building.

WILLIAM T. MURPHY, Chief  
Motion Picture and Sound Recording  
Audiovisual Archives Division

Attachment

SECURITY

All exterior doors must be kept locked at all times even when staff personnel are inside.

All windows and doors will be secured at the end of each work day.

All vault doors must be properly secured at all times except when someone is inside.

A visitor's log must be maintained in each building. Everyone must sign in and out, including all NARS employees.

All visitors must be escorted at all times while in the vaults. An exception is the PES maintenance engineers who regularly enter the vaults.

Only persons with official business are permitted to enter the buildings.

All keys to buildings A and C will be recalled and registered and will be reissued by NNV at its discretion.

The names and official and residential telephone numbers of the Nitrate Vault Supervisor, the Chief of the Motion Picture and Sound Recording Branch, and the Director and Deputy Director of the Audiovisual Archives Division will be posted on the building entrances. The Federal Protective Office will also be given this information to report emergencies.

FPO will be requested to secure the compound gate at 4:45 p.m. each work day.

RELATIONS WITH PBS

Temperature readings must be recorded each work day at approximately 2:00 p.m., when the outside ambient temperature is above 55°F. The readings must be recorded in a log and initialed by the NFMV employee who makes the readings. The air conditioning is set for 55°. All readings above 55° are to be reported to the PBS Field Manager's Office; the report of this call should be indicated in the log's remarks column.

The Supervisor must maintain a record of all calls to PBS concerning air conditioning problems or other equipment breakdowns. The Supervisor should notify the Branch Chief about these calls and should also report follow up action by PBS.

PBS maintenance engineers will enter the buildings after hours on their regular tours. Other repairmen such as pipefitters or painters who do not regularly enter the vaults must be accompanied by an NFMV staff member.

HANDLING PROCEDURES

No nitrate film is permitted in the work rooms overnight. It should be placed in a vault.

No more than 10,000 feet of nitrate film should be brought into the work room at any one time. Film is to remain in covered cans at all times except when it is being worked on.

No smoking is permitted anywhere in the buildings except in office areas. No smoking is ever permitted in the work rooms.

Devices that produce static electricity or intense heat may not be used; nor may inflammable liquids or solvents be used.

All nitrate film that is sent out of the building should be placed in a metal can with a red label identifying it as nitrate film.

Every can of nitrate film will be sight inspected on a semi-annual basis. An inspection slip will be inserted in each can containing the date of inspection and name of inspector. In addition, a record will be kept of the inclusive can numbers in each vault with a date of the last inspection.

Films showing signs of advanced deterioration (i.e., severe adhesion, melting together and bubbling, and brown powder) must immediately be destroyed by submersion in a water barrel closed by a tight lid. The amount of footage destroyed, can number and vault number should be tabulated and included in the Supervisor's monthly report to the Branch Chief.

Scrap film will also be submerged pending disposal.

Films showing moderate tackiness should be given priority for copying on to safety-base film.

All submerged film awaiting disposal should be stored in a vault (Vault 13, Building A) by itself. All submerged film should be removed from the building within ten working days from its discovery. This can be effected by requesting the Branch Chief to prepare a requisition. Under no circumstances should submerged film be removed from the barrels except for hauling away from the building.

No film cans or cartons may be stored on vault floors or in the corridors.

IN THE EVENT OF A FIRE

All personnel will evacuate the building and go to a safe distance. The Supervisor or other available personnel will go to a phone in another building and call the FPO field office (763-7581). If the line is busy, the Prince George's County Fire Department can be reached by dialing 911.

Do not use the fire extinguishers in the buildings to fight nitrate fires or electrical fires. They are for sole use on a paper or similar fire that may occur.

UNITED STATES OF AMERICA  
GENERAL SERVICES ADMINISTRATION*National Archives and Records Service*  
Washington, DC 20408

DATE: March 14, 1979

REPLY TO  
ATTN OF: NNVM

SUBJECT: Nitrate Film Vault Procedures

As a result of recommendations by the ad hoc committee to investigate the fire of December 7, 1978, and our observations during the course of the fire, some changes in nitrate film handling and storage procedures are necessary. The attached set of procedures incorporates these changes. The major ones include a daily temperature reading regardless of outside ambient temperature; daily reporting of construction activities; and accounting for personnel in the event of an emergency.

Although the vault Supervisor has primary responsibility for seeing that these rules and procedures are carried out, everyone who works there should be familiar with them. Each individual has an obligation to be vigilant and to report immediately any activities or conditions that may constitute a fire hazard.

WILLIAM T. MURPHY, Chief  
Motion Picture and Sound Recording Branch  
Audiovisual Archives Division

SECURITY

All exterior doors must be kept locked at all times even when staff personnel are inside.

All windows and doors will be locked at the end of each work day.

All vault doors must be properly latched at all times except when someone is inside.

A visitor's log must be maintained and everyone must sign in and out, including all NARS employees.

All visitors must be escorted at all times while in the vaults. An exception is the PBS maintenance engineers who regularly enter the vaults.

Only persons with official business are permitted to enter the buildings.

FPO has been requested to secure the compound gate at 4:45 p.m. each work day.

RELATIONS WITH PBS

Temperature readings (and humidity readings when available) must be recorded each work day. The readings must be recorded in a log and initialed by the NNVM employee who makes the readings. The air conditioning is set for 55° F. All readings above 55° are to be reported to the PBS Field Manager's Office; the report of this call should be indicated in the log's remarks column.

The Supervisor must maintain a record of all calls to PBS concerning air conditioning problems or other equipment breakdowns. The Supervisor should notify the Branch Chief about these calls and should also report follow-up action by PBS.

PBS maintenance engineers will enter the buildings on various shifts. Other repairmen such as pipefitters or painters who do not regularly enter the vaults must be accompanied by an NNVM staff member.

The Supervisor must report construction or repair work daily. No construction or repair work in vaults with nitrate film is authorized.

GENERAL HANDLING PROCEDURES

No nitrate film is permitted in the work rooms overnight. It should be placed in a vault.

Not more than 12,000 feet of nitrate film should be brought into the work rooms at any one time. Film is to remain in covered cans at all times except when it is being worked on.

No smoking is permitted anywhere in the buildings. Signs should be posted.

Devices that produce static electricity (e.g., high speed rewinds) or intense

eat may not be used; nor may inflammable liquids or solvents be used.

All nitrate film that is sent out of the building should be placed in a metal can with a red label identifying it as nitrate film.

Every can of nitrate film will be sight inspected on a semi-annual basis. An inspection slip will be inserted in each can containing the date of inspection and name of inspector. In addition, a record will be kept of the inclusive can numbers in each vault with a date of the last inspection.

Films showing signs of advanced deterioration (i.e., severe adhesion, melting together and bubbling, and brown powder) must immediately be destroyed by submersion in a water barrel closed by a tight lid. The amount of footage destroyed, can number and vault number should be tabulated and included in the Supervisor's monthly report to the Branch Chief. Scrap film will also be submerged pending disposal.

Films showing moderate tackiness should be given priority for copying on to safety-base film.

All converted nitrate film should be disposed of by submersion upon the inspection of a satisfactory safety copy.

All submerged film awaiting disposal should be stored in a vault by itself. All submerged film should be removed from the building within ten working days. The vault Supervisor should requisition a pick up from NAS. Under no circumstances should submerged film be removed from the barrels except for hauling away from the building.

To avoid blocking sprinkler coverage, vertical storage of film cans between horizontal stacks is not permitted.

No film cans or cartons may be stored on vault floors or in the corridors, and no film may be stored within 12 inches from the roof.

#### IN THE EVENT OF A FIRE

All personnel will evacuate the building and go to a safe distance. The Supervisor or other available personnel will go to a phone in another building and call the FPO field office (763-7581). If the line is busy, the Prince George's County Fire Department can be reached by dialing 911.

The Supervisor is responsible for taking attendance of all personnel in the building where a fire may occur and for designating someone to inform a fire department captain or equivalent whether any personnel remain inside.

Do not use the fire extinguishers in the buildings to fight nitrate fires or electrical fires. They are for sole use on a paper or similar fire that may occur.

HANDLING NITRATE FILM IN THE NATIONAL ARCHIVES BUILDING

Nitrate prints are not available for reference purposes. Nor may nitrate prints be projected in the theater.

All nitrate film sent into the building for laboratory work must be labeled with red tape.

Nitrate may only be stored temporarily in the 5th floor vaults in steel trays, which must be properly closed. Since this will make keeping a large order together quite difficult it is advisable to hold nitrate in Suitland until the day the laboratory is ready to work on it, in which case the nitrate should be sent in on the morning shuttle van. The nitrate film should be returned to Suitland immediately upon completion of laboratory work.

Mr. KINDNESS. Do they contain any specific ways of going about cooperating with local fire officials, fire safety standards and inspections and the preparation or the possibility of firefighting actually having to occur on Federal facilities?

Dr. RHOADS. I recall that in those procedures, there is a section relating to fire, but I think Mr. Moore or Mr. Murphy could answer that more specifically.

Mr. MURPHY. The procedures for the nitrate vaults include a section on what to do in case of a fire. There are provisions for vacating the building, for reporting fire, and going to a safe distance.

There are no provisions in the procedures about setting up a prefire plan with the Prince Georges County Fire Department.

Mr. KINDNESS. Would it be desirable to review those procedures from the standpoint of all facilities that might be similarly involved, not only with respect to nitrate film, but with regard to paper documents which are also subject to potential losses?

I am talking in terms of getting a more regularized way of assuring that there would be cooperation with local fire officials.

Dr. RHOADS. Yes. I think it is correct that we have a fairly close liaison with local fire departments in most of our facilities. The Federal Records Center is very conscious of the possible hazards of fire there. It is my impression, although I cannot speak out of detailed personal knowledge, that in each of those facilities we do indeed have a close relationship with the local fire departments. I think that is essential.

Mr. KINDNESS. People do forget. So, would it perhaps be desirable to have something in the written standards or procedures?

Dr. RHOADS. That is an excellent idea. If we do not have it in there, we will certainly seriously consider adding it.

Mr. KINDNESS. Are any commercial facilities available at reasonable costs for the reproduction of nitrate film on safety film?

Dr. RHOADS. We have explored the possibility of using commercial facilities without a great deal of success. Perhaps Mr. Landers can add some detail.

Mr. LANDERS. Mr. Moore has done most of the searching, and I think we have finally been able to find one firm in town which is able to handle this material. We had a couple of other suppliers out of town that did not turn out, from a quality point of view, to our satisfaction.

We either have or almost have a contract with this firm. We will be sending them material as they can handle it. Generally speaking, it is difficult to find commercial firms that are interested in the business.

Mr. KINDNESS. Is there anything special by way of requirements relating to the transportation of film when it is going back and forth to the commercial processor that might pose a problem?

Mr. LANDERS. It needs to be well taken care of. My impression is this. I am not an expert, but my impression is that as long as you are not crossing State lines, you do not get into the ICC requirements for having each can in a separate container.

Mr. KINDNESS. Is there any other place where NARS stores film, nitrate or otherwise?

Dr. RHOADS. We store a very small amount of nitrate occasionally in the National Archives building in intricately constructed vaults. We only bring in an amount equivalent to a single day's work to be copied in our lab in the Archives building.

We have discovered in recent weeks, at least two or three instances in our Federal Records Centers, where there was some nitrate film. I think a little bit of motion picture film and some cut film was there. We have removed it from the premises and returned it to the agencies from which we received it.

This is material that is still in the official and legal custody of the depositing agency rather than in our own custody.

Mr. KINDNESS. Has there been any reinspection or reevaluation of the storage at the laboratory facility in the main Archives building recently in view of the fire experience?

Dr. RHOADS. Yes, we have taken another look at that since the fire. Although our preference would be to do this copying out of the Archives building, we do have firewalls and sprinklers in our laboratory. We bring in only the small amount which can be processed in one day.

Mr. KINDNESS. Are we sure it is a deluge sprinkler system?

Dr. RHOADS. Mr. Kindness, I am not sure.

Mr. KINDNESS. I thought that was almost a facetious question, but it is not, it turns out. I then must ask this. With regard to cooperation with the District of Columbia Fire Department, have they, since the fire in Suitland, been asked to come in and look at the circumstances in the Archives building?

Mr. RHOADS. I am not sure. Perhaps Mr. Landers can respond to that.

Mr. LANDERS. The Public Buildings Service's accident and fire protection people have been in twice. The Occupational Safety, and Health people were in last week. We have the reports from the PBS inspections. So far as I know, the system is either satisfactory or we are underway to make it satisfactory. I think it is the former.

I do not have any report yet from the OSHA people.

Whether PBS has gotten together with the District of Columbia Fire Department, I am not sure.

Mr. INGRAM. Excuse me, Mr. Kindness.

I meant to call the committee's attention earlier to the fact that prior to the hearing today we were handed a response of OSHA to a letter from the Chairman. If you wish, I could read that into the record.

Mr. KINDNESS. We might do that in a moment.

I am more concerned with firefighters who have to go in there and fight a fire if something does occur. I am wondering whether it would not be a good idea to make sure that the District of Columbia Fire Department is contacted and does have the opportunity to look specifically at this and make any recommendations that they might have.

Dr. RHOADS. That is a very good suggestion. We will follow through on that.

Mr. KINDNESS. Thank you.

Thank you, Mr. Chairman.

Mr. PREYER. We have run a little longer than we intended to today. We have a vote on the floor right now, and I am afraid there are luncheon engagements.

Thursday we will be going into the whole preservation of records problem generally and not just the Suitland fire.

So, I wonder if it would be agreeable to you, Dr. Rhoads, to break at this time and then Thursday perhaps we can give you a certain time, like 2 o'clock in the afternoon, to complete the questioning on this subject that we are on today.

Mr. INGRAM. Mr. Preyer, out of fairness to the witness, we did receive the OSHA response today. If I might, I might read it into the record to allow the witness an adequate opportunity to respond to it on Thursday.

Mr. KINDNESS. Mr. Chairman, I would move that the letter be made a part of the record and copies be made available to Dr. Rhoads.

Mr. PREYER. All right.

Without objection, so ordered.

[The material follows:]

U.S. DEPARTMENT OF LABOR  
Occupational Safety and Health Administration  
WASHINGTON, D.C. 20210



Office of the Assistant Secretary

19 JUN 1979

Honorable Richardson Preyer  
Chairman, Subcommittee of the  
Government Information and  
Individual Rights  
Committee on Government Operations  
House of Representatives  
Washington, D.C. 20515

Dear Chairman Preyer:

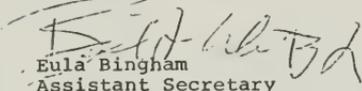
As you requested in your letter of May 4, 1979, a survey of the nitrate film facilities of the National Archives was conducted by Occupational Safety and Health Administration staff. The facilities at 7th and Pennsylvania Avenue, Northwest, and Building C located in Suitland, Maryland were visited during this survey.

The full report of findings is being prepared at this time and will be provided to you as soon as it is completed. In the meantime, the following major findings are provided:

1. The physical structure of the film laboratory, its location, and the deficiencies in fire suppression and fire exit requirements, could cause serious harm to both Federal employees and the public in the event of a nitrate film fire in the laboratory.
2. The laboratory processing, the film load, and its handling are such that it is possible to have a serious nitrate film fire.
3. Although the decomposition products of nitrate film are known to be toxic, there have been no industrial hygiene surveys of exposures to Federal employees who work with the film.

4. The structural deficiencies in the Suitland film vaults were discussed in GSA reports of 1957 and 1973. Very little upgrading resulted from the reports, except for the aborted deluge system for Building A vaults. Since 1977, GSA plans called for major corrections, but these have not been completed. At this time, the facility is still exposed to the hazard of nitrate film fires.

Sincerely,

  
Eula Bingham  
Assistant Secretary  
Occupational Safety and Health

[See app. 2 for final OSHA report.]

Mr. PREYER. Dr. Rhoads, is that agreeable?

Dr. RHOADS. Yes.

Mr. PREYER. Then, without objection, the subcommittee will stand in recess until 10 a.m. Thursday morning.

[Whereupon, at 12:30 p.m., the subcommittee adjourned, to reconvene at 10 a.m., Thursday, June 21, 1979.]

## NATIONAL ARCHIVES AND RECORDS SERVICE FILM-VAULT FIRE AT SUITLAND, MD.

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THURSDAY, JUNE 21, 1979

HOUSE OF REPRESENTATIVES,  
GOVERNMENT INFORMATION  
AND INDIVIDUAL RIGHTS SUBCOMMITTEE  
OF THE COMMITTEE ON GOVERNMENT OPERATIONS,  
*Washington, D.C.*

The subcommittee met, pursuant to notice, at 10:15 a.m., in room 2203, Rayburn House Office Building, Hon. Richardson Preyer (chairman of the subcommittee) presiding.

Present: Representatives Richardson Preyer, David W. Evans, Thomas N. Kindness, and M. Caldwell Butler.

Also present: Timothy H. Ingram, staff director; Timothy R. Hutchens, professional staff member; Maura Flaherty, clerk; and Thomas Morr, minority professional staff, Committee on Government Operations.

Mr. PREYER. The subcommittee will come to order.

We continue today our examination of the circumstances behind the fire at the Suitland, Md., film vault run by the National Archives and Records Service.

Our first witness today is Dr. James B. Rhoads, Archivist of the United States, with his associates. We had begun the questioning of Dr. Rhoads on Tuesday, but unfortunately we were unable to finish, so we welcome him back this morning.

Dr. Rhoads, I will ask you and all of your associates, as we do in all of our investigative matters, to stand and be sworn at this time.

Do you solemnly swear that the testimony you are about to give this subcommittee will be the truth, the whole truth, and nothing but the truth, so help you, God?

[Chorus of "I do's."]

Mr. PREYER. Thank you.

I believe you have an additional statement that you wish to present at this time, Dr. Rhoads.

**STATEMENT OF DR. JAMES B. RHOADS, ARCHIVIST OF THE UNITED STATES, NATIONAL ARCHIVES AND RECORDS SERVICE; ACCOMPANIED BY JAMES W. MOORE, AUDIOVISUAL ARCHIVES DIVISION, OFFICE OF THE NATIONAL ARCHIVES, NARS; WILLIAM MURPHY, CHIEF, MOTION PICTURE AND SOUND RECORDING BRANCH, AUDIOVISUAL ARCHIVES DIVISION, OFFICE OF THE NATIONAL ARCHIVES, NARS; JOHN J. LANDERS, EXECUTIVE DIRECTOR, NATIONAL ARCHIVES; MELVIN C. HUDSON, SAFETY PROJECT DEVELOPMENT ENGINEER, NAVAL ORDNANCE STATION, INDIAN HEAD, MD.**

Dr. RHOADS. With your indulgence, Mr. Chairman, I would like to mention, first of all, that, in addition to having the same three colleagues with me as appeared with me on Tuesday—Mr. Landers, Mr. Moore, and Mr. Murphy—I also have with me Mr. Melvin Hudson who is a civilian physicist and professional engineer working for the Navy who supervised the tests of nitrate film for us that were recently completed at Indian Head, Md. He is completing his report, but I thought I would bring him along in case you might wish to ask him any questions. He is sitting on the front row, immediately behind me.

I would like to make just a few additions to my response when the hearing was recessed on Tuesday.

First of all, I want to be sure that there are the best possible working arrangements between our facilities and the local fire departments. Our administrative people have talked with the accident and fire protection specialist in the Public Buildings Service in the last 2 days on this subject, and it was agreed that meetings would be held with the Prince Georges County Fire Department at Suitland and the District of Columbia Fire Department at the Archives Building to make absolutely certain that there is maximum communication and cooperation to prevent any future fires and, should the unforeseen unhappily occur, to fight them efficiently.

There has been cooperation between our people and the fire department. The District fire officials, for example, have been through the main Archives Building from top to bottom. But we want to be sure, as you do, that no effort is spared.

Particular attention will be given to areas where the nitrate film is stored at Suitland and where the conversion process takes place in our laboratory in the main building.

Those meetings will take place as soon as possible.

Second, the Fire and Accident Prevention Branch in GSA's regional office has confirmed that the existing wet pipe sprinkler system, which they had inspected in our reproduction laboratory, is adequate. A limited amount of nitrate film is there at any one time for conversion. However, here again, we want to be on the safe side, and we are going to ask the GSA fire safety people to make a further study, and we will also ask the advice of the District Fire Department. If a change to a deluge system is indicated, we will certainly have it done as expeditiously as possible.

At the close of the hearings on Tuesday, you gave us a copy of the preliminary OSHA report on the survey of our nitrate film facilities

at Suitland and at the main library building in Washington and indicated that you would like some comment from us.

The letter, which I have now read, is really a very generalized set of assertions and says that a report of findings is still being prepared. I really think that, lacking the detailed report, it would be very difficult for me to comment in any meaningful way at this time. But once that report is in, we will, of course, study it and be happy to respond.

Thank you very much, Mr. Chairman.

Mr. PREYER. Thank you, Dr. Rhoads.

Mr. Kindness?

Mr. KINDNESS. Thank you, Mr. Chairman.

Thank you, Dr. Rhoads.

I am greatly encouraged that these steps are being taken. I wonder if we might expand our realm of thought just a little this morning. This may not be entirely fair to you because it is a thought that has occurred to me since the other day, but it is something to be considered in line with this inquiry.

In terms of disaster of one sort or another, is there in the planning of NARS some preparation for what might occur in the event of a tornado, hurricane, or other type of circumstance that might do damage to the building? Would that have any effect on the operation, for example, of the air-conditioning system and result in greater exposure to risk of fire with nitrate film?

Second, in the event of any type of activity that might cause fire to the building from the outside, is there anything that needs to be prepared for?

I realize this is a little beyond the scope—

Dr. RHOADS. I think that about all I can say, Mr. Kindness, is that the systems to protect the film are, by and large, automatic systems. We do not have to have someone there to turn something on. So, if there were casualties, injuries, or worse, presumably the systems would operate; although I guess I would have to qualify that, depending on the kind of catastrophe it was. It is entirely possible that a tornado, earthquake, or something like that could damage those systems.

I think you are making an important point, but there are so many possible variables in the scenarios that you set forth that I find it a little difficult to respond.

Mr. KINDNESS. Right. I am not suggesting this is a high-risk problem, or that it occurs to me as being such, but, rather, whether, as a result of these events that have occurred, some thought ought to be given to what might need to be put in place by way of protection and planning ahead, or whether it might be determined that there is no unusual risk to be contemplated by any foreseeable event occurring along those lines. I simply had not thought about it really until this morning.

Mr. INGRAM. Pardon me, Mr. Kindness.

Perhaps, Dr. Rhoads, the question might be: whom you rely upon, for advice, both on fire safety and for other possible natural disasters—whether you have on your staff trained engineers who could provide that assistance.

Dr. RHOADS. In terms of trained engineers, of course, we would be relying on the Public Buildings Service for this kind of expertise.

We are giving serious consideration to the establishment of a new position in the National Archives of a security officer who would have

a systemwide responsibility for, not only physical security—prevention of theft or compromise of our holdings—but who would also be the person who would be looking into safety problems.

The Public Buildings Service is allocated that responsibility to a large extent, but I think it might be well to have someone on our staff who would be making an initial response to anything that any member of our staff brought to our attention that appeared not to be as it should be and who would be our main point of contact with the Public Buildings Service, monitoring activities and making sure that steps were taken promptly when it became apparent that they needed to be.

It would seem to me that part of the responsibility of that person might very well be to deal with the kind of potential problems that you have raised, Mr. Kindness. That is certainly something that we ought to be thinking about.

Mr. KINDNESS. Similarly, the other materials maintained by the National Archives—I suppose some thought has been given to what happens in the event of an unusual occurrence to some of the things at the main building, and, I suppose, in all locations where you have materials maintained for storage this same function might be performed.

Dr. RHODES. That is right.

The proposed position I was referring to would be for someone who would have this responsibility generally throughout the National Archives and Records Service system.

Mr. KINDNESS. On another topic, what authority does NARS have at the present time to accession film collections?

There was testimony the other day to the effect that it might be desirable if the Federal Government, or some part of it, were to be more aggressive about acquiring nitrate films and doing something about the preservation of those parts of our history.

Would you care to comment in that area?

Dr. RHODES. Yes.

The Federal Records Act of 1950, which has been amended, of course, but which is our basic charter, authorizes us to accept materials, including audiovisual materials, from non-Federal sources if they—and I am not quoting the exact language—supplement in an important way the coverage of functions of the Federal Government.

We believe that extensive portions of newsreels, including outtakes, do cover Federal Government activities or the implications of Federal Government actions in a way that was not available from Government sources. So, it is under that authority that we have felt free to accept newsreel material.

I should also say that we have had a longstanding agreement—from 1949—with the Library of Congress as to what kinds of nongovernmental audiovisual materials each institutions would collect. That was brought up to date in 1975. We now have a rather current formal agreement with the Library of Congress which divides the turf in what I believe to be a reasonable way.

We are interested in acquiring materials that relate to governmental activities, important public events, and news. The Library of Congress is responsible primarily for those films which would deal with other kinds of matters that are not normally associated with Government.

It is my understanding that the National Endowment for the Humanities is planning to begin a program under its hoped-for new

authorization which would address the whole question of preservation of historical materials, too. I do not have any details on that, but that is another Federal agency that may be able to play an important role in this in the future.

Mr. INGRAM. Would that program overlap with current activities of the Archives or the National Historical Publications and Records Commission?

Dr. RHOADS. I hope that it would supplement it rather than overlap, but I do not have enough details about the NEH proposal myself to be able to give you any categorical answer on that.

Mr. INGRAM. They would coordinate this with you in advance?

Dr. RHOADS. There is a great deal of coordination between the staff of the National Endowment for the Humanities and the staff of the National Historical Publications and Records Commission, and there may have been some discussions already on this of which I am not personally aware.

Mr. KINDNESS. Thank you, Mr. Chairman.

Thank you, Dr. Rhoads.

Mr. PREYER. Thank you.

Mr. Kindness has mentioned the possibility of additional footage of film coming to the Archives. We have heard about the March of Time films and the Universal newsreels.

Are there any specific large acquisitions that are contemplated by the Archives at the present time?

Dr. RHOADS. From non-Federal sources?

Mr. PREYER. Yes.

Dr. RHOADS. I do not believe there are, but I think Mr. Moore could perhaps answer that.

Mr. MOORE. No, there are no large accessions we contemplate from non-Government sources at this time.

Mr. PREYER. Assuming Miss Gish, who is a very effective campaigner and champion for the cause of getting more newsreel films, convinces more non-Federal groups to donate films to you, (1) would you accept them; and (2) where would you store them, if they came in tomorrow, for example?

I understand the old Lansburgh's Department Store facility has been closed as far as any use of nitrate film goes, which I think is a wise move. Where would you store it?

Mr. MOORE. If we were offered any nitrate film, we would not accession it: we would have to convert it before accessioning it.

I assume that if we brought in safety film, the only possibility for storage would be temporary storage at the Federal Records Center. That is the only other space we have at the present time.

Mr. PREYER. I am glad to hear your comment that you would transfer it to safety film before you stored it. Is that a firm policy?

Mr. MOORE. That is a firm policy.

Mr. PREYER. Why did we not do that back in 1970?

Incidentally, who would transfer it to safety film? Is that the Archives' responsibility, or would it be the donor's responsibility?

Mr. MOORE. If we were given a gift, and if the donor were not able or willing to pay for the conversion of the material, it would be the responsibility of the Archives to determine if it was valuable enough for us to spend Federal funds to convert that material.

Mr. PREYER. And if you found it was not valuable enough, presumably you would not accept it.

Mr. MOORE. That is correct.

Mr. PREYER. Was any effort made to get donors to do the conversion?

Mr. MOORE. In the past?

Mr. PREYER. Well, under your present policy.

Mr. MOORE. Yes; we have. In each case, when we have attempted to accession non-Government materials, we have discussed the possibility of having the donor contribute money for the transfer of that material.

Mr. PREYER. Why was that not done at the time the Universal newsreel was accepted? Why was it not transferred to safety film before you stored it, as nitrate film is so dangerous?

Mr. MOORE. At the time the Universal material was transferred to us—we negotiated with Universal for approximately 2 to 3 years to get the transfer—we had sufficient storage facilities for nitrate film at the Suitland vaults and we felt that we could actually accession that material in its original form and gradually convert it, as funds were available.

We did not have sufficient funds to convert it in advance.

Mr. PREYER. So; it was a question of funding?

Dr. RHOADS. Mr. Chairman, I think, to keep this in perspective, we should remember that in 1970 we had been occupying those film vaults which were built and designed specifically for the storage of nitrate film for over 20 years, and had had no untoward experiences. Maybe we were lucky, but there was nothing in our experience to indicate that this was not an acceptable way of proceeding in terms of the hazards that we all knew were inherent in the situation.

Mr. PREYER. All right.

There is one other thing I would like to ask about the current policy, and I think it is a very good one now. In view of hindsight, it is easy to say: "We should have done it then," as you point out. It is good policy to transfer it to safety film before it is stored.

Dr. Rhoads quoted from the law that you are only supposed to accept those aspects of the film which have some public interest. Presumably, you have to screen the film to do it.

I understand that, of the Universal newsreels, approximately 60 percent of that film would be kept. Is that right?

Dr. RHOADS. That is right.

Mr. PREYER. You would discard the rest of it.

Dr. RHOADS. Yes.

Mr. PREYER. Is it not wise to do that screening process at the time that you accept it, so you have 40 percent less film to store?

Dr. RHOADS. I cannot disagree with that, Mr. Chairman, given what has happened.

The film, as I understand it, was in a location near New York City, and it would have meant that we would have had to send a number of employees up there for an extended period of time. We would have incurred transportation and per diem costs over an extended period of time. We felt that we could do it more efficiently and less expensively if we transferred the whole mass down here to the Washington area and did it here.

Mr. INGRAM. Let us clarify, Dr. Rhoads. You had the film in your possession at the Suitland facility for approximately 5 years, as I understand it, before you began to do any determination as to how much of that material is of archival value.

Dr. RHOADS. That is right.

At the outset, we did not really know how much of it was of archival value. We knew enough about it that we assumed some of it was not of archival value, but we did not know how much. You are correct.

Mr. INGRAM. But you accepted it as historically significant material, had it in your possession for 5 years, and then, only after the fire, made a determination as to how much of the material was of historical value under the statute.

As I understand it, there are index cards to the reels of film. I am a little hard pressed to understand why it would not have been possible to have done a review of the index cards which refer to the outtake material, to make at least a rough-cut determination from the index cards' subject headings as to which of those outtake materials may have related to Government functions or may have related to two-headed cows and Harvard Crimson graffiti contents.

Mr. MOORE. There are several factors involved in why we did this. No. 1, the Universal stock footage library had no shelf list. We had no way of determining exactly from the index cards and the other finding aids which film really existed.

Mr. INGRAM. Excuse me.

You are saying now that you took the stuff without even knowing what you got.

Mr. MOORE. No. I am saying that there may have been some disposal or deterioration. Some materials may have been disposed of before we got them. We realized that everything that was listed on the cards did not exist.

In order to determine exactly what is there, you have to go through the film itself, look at the label, and make a list of what is there. This is what we are doing now—making a list of materials that are in existence now, sending that list in, and having it appraised.

So, we had no shelf list to be able to make the appraisal from the the beginning.

The other point is this. And this is a policy of archival institutions that have nitrate film. They retain the nitrate as long as possible because they can get the best possible copy from the earliest generation of the film. It was a policy of trying to provide the best possible quality whenever someone wanted to duplicate.

Mr. INGRAM. Absolutely. But what we are talking about—I am sorry, Mr. Chairman—is the separation of historically significant material from that which is insignificant.

Mr. MOORE. Correct.

Mr. INGRAM. It also appears to me that, if what you are saying is that the card index was not complete, it raises even more of a question that you may not have gotten what presumably you thought you were getting—that there may have been historically significant missing pieces somewhere out there that Universal might still have that you did not know about.

Mr. MOORE. No. Universal did not have it. They transferred their entire library. What was available was transferred to us.

I am stating that there was deterioration, as there is deterioration in any nitrate collection. But we do not know specifically, until we go through the film, exactly what is there. A percentage of the material had deteriorated before it had been transferred to us.

Dr. RHOADS. And had been disposed of by Universal.

Mr. MOORE. That is correct.

We had sufficient storage space for the material. As we went through it, we disposed of it if it had deteriorated or if we found out it was material we did not want. After we changed our policy, we destroyed the original nitrate film after conversion. Before that, to preserve the integrity of the collection itself, we kept the library in its entirety as long as it was in good physical condition.

Mr. PREYER. Who makes the decision as to what is of historical value?

Dr. RHOADS. We have a set of criteria that we have used in going through the Universal film. I would be glad to read some portions of it, or perhaps we could submit it for the record.

Mr. PREYER. We would like a copy of that for the record.

Without objection, it will be included in the record at this point.  
[The material follows:]

Motion picture footage selected for permanent retention by NARS must provide substantive documentation of the organization, functions, policies, procedures, and essential transactions of a Federal agency; or contain information that is unique in substance, arrangement or manner of presentation and unavailable in another form; or document significant events or phenomena; or utilize a significant new technology and represent an advance in the state of the art; or provide a social, technological, and general historical perspective regarding the growth and development of the nation as a whole; or show the interaction of the Government with its citizens.

Specific guidelines developed for the evaluation of Universal Newsreel Outtakes 1929-51 and the March of Time Stock Film Library 1935-1951 are attached.

## Guidelines for Evaluating Universal Newsreel

Outtakes 1929-51, and the March of Time Stock Film Library, 1935-51

General categories to be converted:

1. Significant activities of the U.S. Government and its officials, including all Presidential and vice-presidential activities whether official, partisan, or personal; Senators and Representatives; Supreme Court; cabinet-level officials and or department heads; and other high-ranking officers.
2. Events and topics or other phenomena with national implications, e.g., labor strikes and union activity or topics relating to or illustrative of the effects of the Great Depression. Scenes showing living and working conditions in all aspects of American society.
3. International news events and topics, especially those involving U.S. foreign relations; also wars, conferences, foreign heads of state (royalty, presidents, prime ministers, etc.) and conditions in foreign countries.
4. Prominent, well known, famous or infamous personalities in all fields of endeavor, e.g., arts, culture, entertainment, politics, sports, technology, etc. Especially desirable is sound film with synchronized speech. Early sound interviews are also important.
5. Technological change and advancement, e.g., in architecture, conveniences, medicine, transportation, etc.
6. Scientific achievement, including discoveries, announcements, experiments, and demonstrations.
7. Footage relating to ethnic and racial minorities, such as Polish-American, Italian-Americans, Afro-Americans, and Hispanics; footage relating to immigrant groups; footage relating to women and to the changing perception of women in social and vocational roles.

3. Sports footage should be limited to Olympic Games and professional championship games or matches and professional all-star games.
9. Cultural activities, including the performing arts and communication arts (radio, television, and motion pictures).

Some specific categories to be converted:

1. Outtakes relating to "landmark" newsreel stories as mentioned in Fielding's book The American Newsreel 1911-67. (Required reading.)
2. Outtakes relating to MOT issues of particular editorial significance as mentioned in Fielding's other book The March of Time, 1935-1951. (Required reading.)
3. Significant recreated events involving the participants.
4. Experimental reels (MOT).
5. Camera footage by Richard de Rochement, Julien Brvan, and Eric Salomon.
6. Completed productions identified as "cut negative." (This is not the same as "negative cuts," which are in fact unedited outtakes.)
7. Controversial or censored films.

Categories to be avoided:

1. Sports--amateur and college sports and non-championship professional games or matches.
2. Human interest stories such as "cute kids" and scooter races, unless they have unusual anthropological, sociological, or cultural value.
3. Disasters, exclusive of the "Dust Bowl" during the 1930s and earthquakes.
4. Local, regional, or Canadian "local" stories unless there are broader implications.
5. Weather stories such as hurricanes and snow storms.
6. Beauty and fashion shows.

7. Ship launchings and other ceremonies.
8. Obvious stunts and "oddities."
9. World War II official film, provided there is adequate coverage in other record groups.
10. Foreign-language versions.
11. Staged, dramatized events with actors.
12. Animation outtakes.

Mr. PREYER. The only comment I would make about that is that I hope you are not being too rigid in what is considered to be of historical value so that you do not eliminate things, like the Bess Truman film clip we saw the other day, on the grounds that it is frivolous.

I guess James Boswell changed the whole history of the writing of biography. He was greatly criticized for it when he wrote about Dr. Johnson because he put in all the details of his life which were regarded as beneath the dignity of biography before that time, and that is exactly why we read it today. So, I think a lot of the details, the minutiae, could be historically very important.

Dr. RHOADS. You put your finger on a dilemma that we have. We do not want to stretch our legal authority too far. I think there are some who feel that maybe we have interpreted a little bit too liberally. On the other hand, you are quite right; there are things that might not meet our criteria that do have some interest as social history. So, we walk a kind of fine line there and hope that we do a judicious job of making those decisions.

Mr. PREYER. Is that a notice quorum?

Mr. KINDNESS. Yes.

Mr. PREYER. Then I will recognize Mr. Butler at this time.

Mr. BUTLER. Thank you, Mr. Chairman.

What is involved in converting or creating a film laboratory? Does that involve substantial capital expenditure or physical changes?

Mr. RHOADS. Mr. Landers, perhaps, can be more specific about that than I can.

Mr. LANDERS. I would say fairly substantial but not a fortune.

We have had a lab in the basement of the Archives building for several years. From time to time, we have modified it and remodeled it. If you are talking about construction expenses, or purchase of new printer machines, or new devices, the old ones are not as good as the new ones sometimes, or the old ones wear out.

Were you thinking that we ought to build a new laboratory someplace out in the woods?

Mr. BUTLER. No. Is there not a supplemental request to turn one of the burned-out vault areas into a film laboratory?

Dr. RHOADS. That is encompassed in our supplemental request—yes.

Mr. BUTLER. Does the Library of Congress have a film laboratory, also?

Dr. RHOADS. The Library of Congress is developing, or perhaps expanding, its nitrate film conversion facilities at Wright-Patterson Field in Dayton, Ohio.

It is my understanding—and Mr. Curran will be the best witness about this—that they expect this to be completed in the summer of 1980, and we hope to have our motion picture film conversion completed by the fall of 1980.

Mr. BUTLER. You do not feel that we are duplicating effort in this regard—or expense?

Dr. RHOADS. I think that the Library of Congress has enough nitrate film to be converted that they can probably run full tilt in their new facilities, and we can do the same.

Mr. BUTLER. So, you really think we need two?

Dr. RHOADS. I think we do, unless we really want to take the risk of prolonging this process. Given what has happened over the last

couple of years, I am not enthusiastic about prolonging the conversion process one day longer than it needs to be prolonged.

Mr. BUTLER. Well, that statement surprises me.

Mr. PREYER. Would the gentleman yield on that?

Mr. BUTLER. Yes, sir.

Mr. PREYER. I believe there was some testimony that you could complete the conversion process by 1980.

Dr. RHOADS. The late summer or fall of 1980.

Mr. PREYER. And that the Wright-Patterson facility of the Library of Congress really would not go into operation until about that time.

Dr. RHOADS. Perhaps a couple of months before is my understanding of the schedule.

Mr. PREYER. Thank you, Mr. Butler.

Mr. BUTLER. Well, you are concerned about the risk involved in maintaining the nitrate film forever?

Dr. RHOADS. I am, indeed.

Mr. BUTLER. Mr. Preyer talked about an earlier screening process. Have you explored all of that?

Of course, you do not have any great acquisitions in the offing, but it seems to me that it makes sense to do the screening as early as possible and have your criteria pretty well laid out. Have you explored that aspect of it? Have you got a policy with respect to the next generous donor who comes along?

Dr. RHOADS. Mr. Butler, I hope that the experiences we have had have taught us something.

Certainly, in the unlikely event that we should be offered another large donation of nitrate film, we would take our experience of the last couple of years very seriously in our negotiations with the donor and the arrangements under which we were willing to accept it and in our procedures in dealing with the material if, in fact, a gift was consummated.

Again, we felt that we were saving the taxpayers some dollars by not going through and making this visual inspection and separation of the Universal films until we could make it a part of the conversion process. This enabled us to avoid some time-consuming double handling.

But, in view of our experiences, we are certainly sensitized to the need to prevent a recurrence of what has happened.

There is one other point that I perhaps should make. The storage facilities for the Universal collection before it was transferred to us were certainly less satisfactory in terms of caring for the film. For example, they were not air-conditioned. By bringing the film into our vaults, we felt we were giving it a better lease on life than where it was.

Mr. BUTLER. I have one more observation.

I feel that this is not a one-way street. We are not the only beneficiaries of your preservation activities. I am sure Universal are generous souls, and all that, but it was nice for them to be able to think—it turned out not to be altogether nice—that their films were going to be preserved in a good situation. So, I hope you would explore seriously the possibility of imposing on future donors the responsibility for the cost of the transfer and any other expenses that are instant to it.

It seems to me that you make a judgment based on the value of the film. Whether it is going to cost you anything should not be based on

the value of the film. But if the film is valuable and we are rendering a service to the people who want their records preserved, I think it is entirely reasonable for the Government to insist that the cost of the transfer be borne by the donor. This is only my opinion.

Dr. RHOADS. I think that is not an unreasonable opinion. I think one has to balance that off against the value of the film and also against the fact that at least the general practice of newsreel companies has been not to spend any of their money for conversion. They use the film, make whatever profit they can from furnishing copies of it to persons who want it for as long as the film lasts—

Mr. BUTLER. They also probably take some tax advantages from the donation; would you not think?

Dr. RHOADS. I think that is entirely conceivable.

Mr. BUTLER. Well, I do not like to—

Dr. RHOADS. No. That is something we should try in the future very hard to see happen. I certainly do not want to take over again a major, long-range, expensive commitment for conversion if there is any possible way around that.

Mr. BUTLER. All right. I thank you.

I am sure my time has expired, Mr. Chairman.

Mr. PREYER. I see we have a vote, and I think this might be a good time to break for it.

Along the lines Mr. Butler was questioning you—about the tax benefit to the donors—is there any use benefit to the donors also? What has been the use of these Universal newsreels? Has Universal used them in any way, or have educational institutions, or any groups asked to use them? Do you charge anything if they do use them?

Dr. RHOADS. In 1974, when Universal deeded over all of their rights to these materials to us, the films were placed in the public domain.

We do not charge people for using the film. We do not charge them any kind of a licensing fee, as commercial firms do. They are available for use by anyone. We do, of course, charge them the cost of making copies, if they wish to have copies.

Mr. PREYER. Has any of the Universal newsreel footage been used by educational institutions, or has it not been in shape to be used.

Dr. RHOADS. Oh, I think they have been used. My colleagues on my left would be better able to answer that.

Mr. MURPHY. Since the Universal newsreel library was placed in the public domain in 1974, virtually every major film and television organization in the United States has used it at one time or another, including a number of universities—the University of Texas, for example; the California State University at Long Beach; Boston, and so on.

Mr. INGRAM. Are these the outtakes you are talking about?

Mr. MURRAY. Outtakes plus the releases.

In fact, that has been one of the things, I think, that has somewhat interfered with the preservation program. There has been such a great public demand for the use of Universal material. This sometimes stands in the way of the program.

Mr. INGRAM. Generally, the requesters of this material will be paying for the conversion from nitrate to safety film. One would expect, with this heavy use that you point to, that all of that stuff that burned up out there would have been on safety film by now.

Mr. MURPHY. This is the first year in which we have instituted a 30-percent service charge, to go back to our preservation activities, for the use of the material. The 30 percent is based upon the laboratory costs for duplication.

Mr. BUTLER. Excuse me, Mr. Ingram; 30 percent of what?

Mr. MURPHY. Laboratory costs. If a television company wants to obtain reproductions of film, they pay a laboratory charge, and we have tacked on a 30-percent service charge that goes back to our preservation activities.

Mr. BUTLER. So, it is 130 percent. They pay the cost plus 30 percent.

Mr. MURPHY. That is right.

Mr. INGRAM. And that goes back into what fund?

Mr. MURPHY. It goes back to our motion picture preservation activities.

Mr. INGRAM. Back to the U.S. Treasury or the Archives?

Mr. MURPHY. I think Mr. Landers could answer that.

Mr. INGRAM. Where does that money go?

Mr. LANDERS. All the fees that we collect for all the reproductions that we sell go into the National Archives Trust Fund. Within that fund, we then set aside these surcharges in order for us to be able to convert additional nitrate movies into safety film.

I might add that—and I will need some help on the dates—with regard to Mr. Ingram's question as to why it was that the purchasers of the footage had not paid for the conversion to safety film. We did not feel that it was fair, at that time—we have changed our minds subsequently—to have the first person who comes in and wants to buy a reproduction of this segment pay the total cost of copying that film onto safety film and from there to make the copy that he is going to get.

So, our practice in the past—not today—was to make his copy directly from the nitrate film, and put the nitrate back in the vault, and sell him his safety film, but just at the cost that it took to do that. We were not building in an additional cost to generate some money to try to help us convert additional nitrate to safety film.

Mr. PREYER. So, when the University of Texas borrows this film, it is transferred to safety film before the University of Texas gets it?

Mr. LANDERS. Yes.

Mr. PREYER. So, a lot of this footage might still be outside?

Mr. MOORE. They do not borrow it. The University of Texas would receive a copy of it.

Mr. PREYER. They would have their own copy?

Mr. MOORE. They would specify what footage they wanted, and we would make a copy of that footage.

Mr. PREYER. The second bell has rung.

The subcommittee will stand in recess for about 10 minutes.

[Recess taken.]

Mr. PREYER. The subcommittee will resume session.

Mr. EVANS?

Mr. EVANS. I have no questions at this time, Mr. Chairman.

Mr. PREYER. Thank you.

I will recognize Mr. Ingram and then Mr. Morr for a few questions to complete the record.

Mr. INGRAM. Thank you, Mr. Chairman.

Dr. Rhoads, you had acknowledged, I guess, that the National Archives does not presently have a safety officer who is a trained fire safety expert. Is that correct?

Dr. RHOADS. That is correct.

Mr. INGRAM. The Administrative Services Division, however, does do inspections of the main Archives building and presumably the Lansburgh's department store facilities for the National Archives and then reports to you its inspection findings?

Mr. LANDERS. I would say, from a general housekeeping user-occupant point of view, that is correct. If we have any questions about fire safety, then we call our friends in the Public Buildings Service. They are the experts in this field.

Mr. INGRAM. You have always relied on the Public Buildings Service, then, when they give you advice about the safety of buildings?

Mr. LANDERS. For technical advice. We do not have any fire engineers on our staff.

Mr. INGRAM. And you rely on the Public Buildings Service for that advice?

Mr. LANDERS. Yes.

Mr. INGRAM. I am a little hard pressed to understand, then, the correspondence between the Public Buildings Service and the Archivist.

On June 19, 1975, Mr. Meisen, the Acting Commissioner of the Public Buildings Service wrote to Dr. Rhoads concerning the acquisition of the Lansburgh's department store. In that letter, he concluded that his office was concerned that the Lansburgh's department store "failed to comply with the criteria for the type of occupancy that the Archives had required." The Administrator had agreed with the report recommendation that "even for temporary storage of Government records, we cannot condone the use of the Lansburgh's building."

It went on to attach to that a rather complete, it appears, report by Mr. Hawkins, who will be here later, who said, "The Lansburgh's building floor load is rated at 100 pounds per square foot. The NARS standard is 300. The sprinkler system is at least 50 years old and untested. The subject building's type construction is classified a 'ordinary.' NARS standards require fire-resistant construction. The space is not separated by firewalls in individual records storage areas of 40,000 square feet each, as required by NARS standards," and so on.

How did you end up in Lansburgh's after that rather damning indictment of the building as a firetrap?

Dr. Rhoads. I would like to call on Mr. Landers to respond to that.

Mr. LANDERS. We acquired it after the Public Buildings Service changed their mind and we got a later letter—the date of which I do not remember—which said that the occupancy was satisfactory and that they were looking into some other things. And we went ahead and occupied it.

Mr. INGRAM. Did that not raise any curious note in your mind that there may have been some difficulty—after that first letter?

Mr. LANDERS. As I recall, the second letter said that they were looking into alternative procedures and I think our perception at the time was that they had taken another look at it perhaps or, for one reason or another, had changed their minds, and we—or they—were going to do something to improve the fire rating.

I might add that, after they changed their minds, and we got into the business of occupying the building, we did, in fact, install smoke detectors in the building, which give us an advance warning of any fire.

Mr. INGRAM. Let me just call to your attention a subsequent report from Mr. Howard—who I believe will be here a little later—and Mr. Hawkins, finding still serious deficiencies in the fire safety standards of that building.

There is a gap in the record between this letter to Dr. Rhoads in July and December when, later, there was this apparent approval.

Dr. Rhoads. I would like to know what went on between July 1975 and December 1975 when this was approved. I take it you sat back and heard nothing further from them. Or was there some communication between you and Mr. Sampson?

Dr. RHOADS. As best I can recall, the communications were between Mr. Landers' office and the people in the Public Buildings Service. I do not recall any specific personal involvement that I had in that.

Does that accord with your recollection?

Mr. LANDERS. Yes, I think that is correct.

Mr. INGRAM. You had no personal involvement, yet you did receive this correspondence from the Public Buildings Service upon whom you rely for fire safety advice, pointing out some very substantial fire safety hazards for that building.

Your testimony—just to clarify—is that you left this up to Mr. Landers who took care of matters with GSA?

Dr. RHOADS. That is my testimony. I do not have the time or the expertise to take care of every piece of correspondence that is addressed to me. I rely on people who have the time, the function, and the responsibility, and greater expertise than I have in some of these technical matters.

Mr. INGRAM. The technical matter we are talking about is the moving into a fairly large building which, in terms of NARS' overall resources, is a fairly good chunk of allocation of resources.

What is your present feeling about the safety standards of the Lansburgh's building following the 1976 and 1978 reports to you?

Dr. RHOADS. Well, there is no question but that if we were to build a new building, we would require certain standards that are not met in the Lansburgh's building.

We had a need for additional storage space; the records that we are not able to accept for lack of space, by and large, are probably in space that is less carefully tended, and much of it comes further from meeting fire safety regulations than the Lansburgh's building. It is not ideal; we have viewed it as a temporary facility; we will be glad when we are to the point where we can move out of Lansburgh's and move into a building that does meet all our criteria; but we think, in terms of the safety of the records and so on, that has not been diminished when compared with the scattered facilities of the Government that records would have been housed in otherwise.

Mr. INGRAM. The point, again, seems to be that you have to rely on the Public Buildings Service for this advice. They have provided the advice. Perhaps, again, this raises some questions about the advice you have been getting. Or, as I said, it seems to raise some substantial questions as to how, again, you ended up in the building.

Dr. RHOADS. If the final word of the Public Buildings Service had been that that building was unsatisfactory for the kind of use we were to put it to, we would not have moved in.

Mr. INGRAM. You would not have moved in?

Dr. RHOADS. No, sir.

Mr. INGRAM. You said in your testimony on Tuesday:

As a result of this most recent fire, we are taking all steps possible to protect the remaining film until it can be converted. We are enforcing the rule that only one vault door may be opened at a time; that all doors must be closed unless someone is working on the vault. We have required that a fire plan be coordinated with the local fire departments.

Just to clarify, is there a fire plan now that is in place, that you referred to in the testimony on Tuesday?

Dr. RHOADS. Mr. Murphy?

Mr. INGRAM. Dr. Rhoads, I am asking you because there appears to be conflict in the later answer received from Mr. Murphy, who said there were no provisions in the procedures about setting up a fire plan with the Prince Georges County Fire Department or with other fire departments. I just want to clarify that.

Dr. RHOADS. We have had meetings with the Prince Georges County Fire Department subsequent to the fire. I believe Chief Estep testified to that on Tuesday. They have been through there. They know what the lay of the land is; they know what kind of material they are dealing with. Whether that meets your definition of a "fire plan," I am not certain.

Mr. INGRAM. I was just curious whether NARS required this by regulation. I take it the answer is "No"—that there is no regulation which would require this at present.

Dr. RHOADS. I do not think there is any formal regulation in existence at the moment that requires that, but it has been done.

Mr. INGRAM. As I understand it, you are presently talking about putting in a lab at Suitland.

Dr. RHOADS. Yes.

Mr. INGRAM. In your reply to Mr. Preyer, you said, with regard to the amount of residential area, "A lot of the residential areas that are now around the Suitland plant, I think we would all agree, are too close to our film vaults," but houses had not as yet been built at the time when the vault was placed there.

I was curious about why you were putting a lab there, when you acknowledge—or at least you appear to acknowledge—that the vault is too close to the residential area for safety.

Dr. RHOADS. The purpose of putting in the lab, of course, is to expedite the conversion of the film. Putting the lab there would not result in any net increase of flammable materials in the Suitland area, and it would be of assistance in our goal to reduce the amount of flammable materials there just as quickly as possible.

Mr. INGRAM. So, you recognize that it might be a fire hazard, but it is the best you can do under the circumstances, short of searching for alternative sites?

Dr. RHOADS. I would say yes.

Mr. INGRAM. You said also that the film that had burned had been inspected no earlier than 30 days before the fire—"We think it is un-

likely that there was any seriously degraded film in the vaults at the time."

During the inspection of building A in October, 30 days before the fire, 34 rolls of film were found to have been decomposing. It took about 10 people 5 days to inspect the 41,000 rolls of film. This means that each person inspected approximately 111 rolls an hour or about 1 roll about every half minute.

Was that adequate time to inspect, and to determine whether or not the film was decomposing or safe?

Dr. RHOADS. I have not had the opportunity to calculate how many rolls per hour were involved.

We believe that the sight inspection process enables us to catch the material that is degrading.

Mr. INGRAM. But the half-minute visual inspection of the can is sufficient and does not require taking the film out of the can and looking at it on a reel to determine whether or not it is deteriorating or decomposing?

Mr. MURPHY. I believe that our system of sight inspection, which is what we call our semiannual inspection of the vaults, is similar to other institutions that have large quantities of nitrate film.

Although rewinding a film on a table is preferable, it is just not practical to do it when you have large quantities of film. Sight inspection is deemed very appropriate to this type of collection.

I think you might ask the same question of the Library of Congress people because I believe we follow the same procedure as they.

Mr. INGRAM. What I am trying to get at, and the reason this appears to be important, is that Chief Estep, on Tuesday, went through the theory that this material may have decomposed—may have heated up in the can—and caught fire. The question is whether or not there may have been decomposing film in the laboratory out there that might not have come to your attention in that quick, visual inspection.

But I will leave your testimony at that.

Dr. RHOADS. I think that Mr. Hudson, whom we have brought with us, might be able to respond to some of those concerns. If you have any questions along those lines to ask of him, he is an expert in the field.

Mr. INGRAM. With your indulgence, Mr. Chairman, I have two last questions.

I will ask the witnesses to provide for the record the following information.

You said, on Tuesday, that you could convert nitrate film to safety film for roughly 25 cents a foot. I understand your estimate is about 22 cents a foot.

[See note at p. 57.]

Mr. INGRAM. I wonder if you could factor in for us the cost of the lab that you are proposing to build, and by factoring in the capitalization costs for the new lab, what it would then cost per foot for this conversion.

Dr. RHOADS. We will be happy to do that.

Mr. INGRAM. If I am correct, I take it that the 22 cents per foot figure is simply based on your existing lab and not the cost for the new lab you are proposing.

Mr. PREYER. Without objection, it will appear in the record at this point.

[Subcommittee note: Whether the Archives installs a laboratory at Suitland to convert nitrate film depends on whether the Occupational Safety and Health Administration condemns such conversion in the laboratory at the Archives main building. At the time this transcript was printed, OSHA had not decided whether to permit the work to continue at the main building.]

Mr. INGRAM. Finally, Mr. Landers had referred to the Public Buildings Service's accident and fire protection reports—that they had been twice in the Archives building. I wonder if you could provide that to us for the record.

Dr. RHODES. Certainly.

Mr. PREYER. Without objection, it will appear in the record at this point.

[The material follows:]



General Services Administration  
National Archives and Records Service  
Washington, DC 20408

Date: May 22, 1979

Reply to  
Ann of: NAS

Subject: Action taken on the report of Industrial Hygiene Survey of NARS  
Activities, Archives Building

To: O. R. Maisch  
Director, Accident and Fire  
Prevention Division

We have taken the following actions as a result of your survey of NARS activities on March 20, 1979.

1. Preservation Services Laboratory (Room B-1)
  - a. Laboratory exhaust hoods.  
We have issued written instructions that the sashes must be kept at the closed position and not allowed to be raised above 10 inches during use.
  - b. Eye wash station  
The eye wash bottle has been filled and instructions have been issued for the bottle to be kept full at all times.
2. Carpenter Shop (Room B-19)
  - a. Inhalation of plastic dust.  
We have ordered as recommended 3M disposable respirators with M10SH approved number TC-21C-132 to be worn when plastic is being cut.
  - b. Use of methyl alcohol to clean plastics has been discontinued. We are now using a safe cleaner from the chemical Products Company.

LEWIS M. ROBESON  
Director  
Administrative Services Division

UNITED STATES OF AMERICA  
 GENERAL SERVICES ADMINISTRATION

DATE: APR 10 1979

*Public Buildings Service*  
 Washington, DC 20405

REPLY TO  
 ATTN OF: Accident and Fire Prevention  
 Division - PBA

SUBJECT: Report of industrial hygiene survey of  
 GSA workplaces at the National Archives and  
 Records Service (NARS) activities

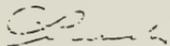
Director, Administrative Services Division - NAS

An industrial hygiene survey of the General Services Administration (GSA) workplaces at the NARS, Washington, D.C. was conducted on March 20, 1979, in accordance with the provisions of Executive Order 11807, 29 CFR Part 1960, Occupational Safety and Health for the Federal Employee, and the PBS P 5900.2, Chapter 4, Accident and Fire Prevention General.

A report of the findings and recommendations is enclosed for your information and corrective action as required.

Within 30 days following date of this report, please provide the Accident and Fire Prevention Division (PBA) with a response to each of the findings. For corrective action that will take more than 30 working days, an abatement plan for deferred corrective action (in accordance with paragraph 26 of PBS P 5900.2 Chapter 4); must be included in your reply.

Thank you for your cooperation.

  
 O. R. MAISCH  
 Director, Accident and Fire  
 Prevention Division

Enclosure

UNITED STATES OF AMERICA  
GENERAL SERVICES ADMINISTRATION

DATE: APR 9 1979

Public Buildings Service  
Washington, DC 20405

REPLY TO  
ATTN OF: Roy D. Ashley - PBAB

SUBJECT: Industrial Hygiene Survey of NARS  
Activities, Washington, D.C.

Craig B. Schilder - PBAB

435-179  
4/15

On March 20, 1979, a preliminary industrial hygiene survey was conducted at the NARS activities indicated below with the following recommendations:

1. Preservation Services Laboratory

- A. In this laboratory, there are two laboratory exhaust hoods where heptane, methyl ethyl ketone, 1:1 mixture of toluene and heptane, and 1:2 mixture of amyl acetate and heptane are used in removing tape from old documents. The ventilation across the face of these two hoods is less than 10 feet per minute with the sash fully opened.

Recommendation: Increase the ventilation across the face of these hoods to a minimum of 100 feet per minute. When engineering controls are not feasible, the hoods may be used if the sashes are maintained at the closed position and not allowed to be raised above 10 inches during use.

- B. Eye Wash Station. A plastic eye wash bottle was maintained at this location containing approximately 1/2 of its capacity of water.

Recommendation: Maintain the eye wash bottle at full capacity.

- C. Comment: Dr. Chandru Shahani, Chief of the Document Preservation Branch is to be commended on following good industrial hygiene practice in minimizing employee exposure to the solvents used in his laboratory by: (1) requiring the use of squeeze bottles instead of open mouth bottles, and (2) soaking documents overnight instead of during the day.

2. Carpenter Shop (Room E-19)

- A. Various plastics used for exhibit cages are cut and sawed to various sizes and shapes in the carpenter shop. Inhalation of plastic dust can be a serious respiratory exposure.

Recommendation: Use disposable NIOSH approved dust respirator whenever cutting or sawing plastics (USE 3M

disposable respirator with NIOSH approval number TC-21C-132 or equivalent).

- B. Methyl alcohol is used to clean plastics. Because it may cause blindness if splashed into the eye, it is considered a very serious exposure.

Recommendation: Discontinue the use of methyl alcohol for the cleaning of plastics and substitute it for one of the safe cleaners. The safe cleaner from the Chemical Products Co. Inc. of Omaha, Nebraska that is currently being used is an acceptable substitute.

*Ray D. Ashley*  
RAY D. ASHLEY

February 6, 1979

Preservation Services Division - NAP

Film storage and handling, Archives building

Engineering Applications Branch - PBAD

Your letter of January 29, 1979 outlined conditions that would be acceptable for storage of nitrate aerial film in the fifth floor storage vaults. However, effective Friday, February 2, 1979 we discontinued the practice of furnishing reference service on the aerial nitrate. Because of this the quantity of aerial nitrate film in the building should be zero at the end of this week.

We have requested an air conditioned vehicle from 3FZM for use in transporting nitrate film daily between the Archives building and the Suitland vaults. They have not yet replied to our request.

We have one large water-filled can for the collection and storage of nitrate film scraps. Additional cans have been ordered for the processing areas and will be installed as soon as they are received from stock stores.

JAMES L. SEAR  
Director  
Preservation Services Division

## UNITED STATES OF AMERICA

## GENERAL SERVICES ADMINISTRATION

Public Buildings Service  
Washington, DC 20405

JAN 29 1979

DATE

REPLY TO  
ATTN OF

Engineering Applications Branch - PBAD

SUBJECT

Inspection of Nitrate Film Storage and Handling,  
Archives Building, Washington, DC

Mr. James Gear - NAT

This letter will summarize inspection comments that Donald Fustich of my office made to you on January 4th and 25th. The storage of nitrate film in any other location except in an approved vault per the National Fire Protection Association (NFPA) Standard No. 40, is substandard. The present storage practice of placing the aerial nitrate films in an old unsprinklered vault on the fifth floor (Room 502D) is not acceptable.

You noted that you are trying to obtain a vehicle to make runs between Suitland and the Archives Building and this will eliminate any nitrate film storage at the Archives Building. As a temporary storage measure, we suggested moving the film out of the unsprinklered vault across the interior corridor to a sprinklered vault. This area is only acceptable if the ventilation system does not recirculate to any other area and dumps all exhaust air directly to the outside.

Mr. Fustich noted an absence of water filled waste cans for the collection and storage of scrap nitrate film in the various processing areas. Please let us know of what actions you plan to initiate to alleviate these problems. If you need assistance, please contact Donald Fustich on 566-1486.

O.R. MAISCH  
Director, Accident & Fire  
Prevention Division

2/1/79

Re telecon with Donald Fustich.

1st paragraph applies only to aerial nitrate.

Does not apply to motion picture film if cans are properly stored in built in equipment - each service separated.

(4)

Mr. INGRAM. Finally, I will read into the record the response that we received from the OSHA people which we will have an opportunity, once both the subcommittee and the Archives receive further details of this, to go into further.

For the benefit of the subcommittee, briefly, OSHA found :

One, the physical structure of the film laboratory, its locations, and the deficiencies in fire suppression and fire exit requirements could cause serious harm to both Federal employees and the public in the event of a nitrate film fire in the laboratory. Two, the laboratory processing, the film load, and its handling have been such that it is possible to have a serious nitrate fire there. Three, although the decomposition products of nitrate film are known to be toxic, there have been no industrial hygiene surveys of exposures to Federal employees who work with the film. Four, the structural deficiencies in the Suitland film vaults were discussed in the GSA reports of 1957 and 1973. Very little upgrading resulted from the reports except for the aborted deluge system for building A vaults. Since 1977, GSA plans called for major correction, but these have not been completed, and at this time the facility is still exposed to the hazard of nitrate film fires.

Dr. Rhoads, I wondered, finally, whether you are familiar with the OSHA requirements which are that, following an accident in a facility with a loss in excess of \$100,000, there is a report which must be filed with OSHA within 3 days. As far as we can determine, that report has not been filed, although the loss, according to the GSA fire inspection team, was fixed at approximately \$131,000.

So, if you are not aware of that, the OSHA people may be calling that to your attention.

Thank you, Mr. Chairman.

Mr. PREYER. Thank you.

Mr. Morr?

Mr. MORR. Thank you, Mr. Chairman.

My basic concern is with the status of the film that is left, as a result of the 1978 fire.

I believe that you indicated the film is inspected semiannually. When was the last time that the film currently stored there was inspected?

Mr. MOORE. We inspected all the film right after the fire, in January. We inspected all the film that was on the truck in April. That was 3 million feet salvaged from A building.

I should point out that, among the 3 million feet that survived the fire, there was not a single roll of deteriorated film.

We are now—6 months since January—reinspecting the film in C building. That is going on right now.

Mr. MORR. Let me ask you this. When you inspected in January, and as you are inspecting now, what portion of the nitrate film collection had decomposed to a point that you felt it was not safe to keep it?

Mr. MOORE. The film collections have been in very good condition. Our reports show that minimal amounts of footage have been found with incipient deterioration. I do not believe we found any advanced deterioration.

Mr. MORR. Do you have a process to assign priority to films that should be converted?

Mr. MOORE. Yes. That works several ways.

In terms of the Universal collection, we have concentrated on the released stories—the edited stories—first. Then, we have gone to a selection of the outtakes.

Mr. MORR. Does your process factor in any decompensation of the film?

Mr. MOORE. Yes. If we find advanced deterioration, that is destroyed immediately. If we find footage in incipient, first or second stages of deterioration, we will give that priority in the laboratory.

Mr. MORR. OK. Thank you.

I noted in the original agreement with Universal that it was a requirement that the film be transferred to NARS in batches of 100,000 feet, as you completed conversion of the previous 100,000 feet of film. Then, I guess it was 1974 or somewhere in there, you received a tremendous shipment of the balance of the film. What happened that caused the change in the process?

Mr. MOORE. Universal gave us a donation to install a sprinkler system. After that, we received the rest of the collection.

Mr. MORR. Was this done at their request or your request?

Mr. MOORE. They asked if we would install the sprinkler system in building A before the remainder of the material was transferred. We did not have money to do it at that time, and they donated the money to install the sprinklers.

Mr. MORR. No. I am talking about the timing—when the bulk of the film was given to you. Did you seek it out at that point, or did they ask you to accept it?

Mr. MOORE. I think it was somewhat of a mutual agreement. I do not recall that either one was applying pressure on the other.

Mr. MORR. OK.

In terms of the initial acquisition of the donation, was that something you had sought from Universal, or did they come to you?

Mr. MOORE. Initially, in November 1967, the local representative of Universal asked us if we were interested in it. After that time, the conversations began.

Mr. MORR. There is one more item for the record.

Once the film is converted, I understand you now destroy the nitrate film. How is it destroyed?

Mr. MOORE. The material is buried in a landfill in Lorton.

Mr. MORR. I have a question in terms of the historical value of the film that remains. I understand that, after the 1977 fire, there were a number of recommended improvements to the vaults, and those improvements were underway at the time of the 1978 fire. Since the 1978 fire, there are plans now to cut back on some of those improvements.

My question relates to the relative value of the cost of the improvements versus the value of the film in the interim period, before it is converted.

Would you care to comment?

Mr. MOORE. I am not sure exactly what the cutbacks on the improvements are. The air-conditioning is one.

Mr. LANDERS. The question is, is it cost-effective to do as extensive a modification to a building which we now appear not to be occupying for as long as we thought we were going to occupy it when the work was originally started.

It is the Public Buildings Service's question, and we will be involved in that decision. I do not know that we have exactly settled that. Part of it will depend on whether we get the supplemental funds or not. That affects how long we are going to stay in the building. If we are going to be there longer, there is a longer period of time

over which to spread the capital costs. If we are going to be there a shorter time, then perhaps we do something different.

Mr. MORR. Let us say we have a fire tomorrow. If you were king for a day and could install those improvements today, would you do it, knowing that you are going to be there for 2 years?

Mr. LANDERS. Well, I am not going to be king for a day, and we are not going to install it in a day. It is going to take a year to get it installed anyway. There is a real question in my mind as to whether it makes very good sense, everything considered, to proceed with quite as elaborate a job as we had originally planned, if we are going to be in the building for as little time as we hope.

Mr. MORR. I have one other question. I thank the subcommittee for the time.

If you had a proper laboratory and high quality storage facilities at Suitland, would you be interested in accessioning other historically valuable collections of newsreel film?

Dr. RHOADS. I think only if we had assurances of funds to convert the material very promptly or in advance of the transfer.

Mr. MORR. Thank you, Mr. Chairman.

Mr. PREYER. Thank you.

Thank you very much, Dr. Rhoads and your associates.

We are very encouraged that, while we regret this tragedy, it has resulted in some steps which I think will make future storage safer.

We appreciate your being here today.

Mr. RHOADS. It was my pleasure.

[Followup questions and answers appear at app. 9.]

Mr. PREYER. Our next witness is Mr. William McHugh of the National Archives—I am sorry, Mr. McHugh. I am afraid I overlooked the first item on the agenda after the other group. We will have to ask you, if you do not mind, to wait for a moment. You will be the next witness.

Mr. McHUGH. That is fine.

[Letter dated July 9, 1979, from William McHugh follows:]

July 9, 1979

Honorable Richardson Preyer  
 Chairman, Subcommittee of the  
 Government Information and  
 Individual Rights  
 Committee on Government Operations  
 House of Representatives  
 Washington, DC 20515

Dear Chairman Preyer:

As a member of the ad hoc committee investigating the Suitland film fire, I attempted on several occasions to have the committee address the possibility of spontaneous combustion. Thomas Goonan of GSA seemed to be in league with William Murphy of the National Archives who was especially anxious to exclude any real discussion of the spontaneous combustion from the committee's report. I enumerated for the committee some of the reasons I felt spontaneous combustion was a serious possibility:

1) Aging nitrate film--The film burned up in the fire was from the 1940s period. Vaults 8 through 10, where the fire is thought to have started, contained film from 1943 through 1945. These were the war years when lower quality film was produced owing to a shortage of chemicals, as well. Such film is subject to more rapid deterioration.

2) Poor environmental controls--According to Mr. Murphy, the newsreels in the years before they were given to the National Archives were stored in vaults where heat and humidity were not controlled. After the Archives received the film, the heat was more or less controlled but the humidity was not.

3) Malfunctioning air cooling system--Dario Luna of the Accident and Fire Prevention Branch of GSA obtained data that showed freon had to be added to the cooling system in Building A about three times a week for the three months before the fire. Jim Wall of the Library of Congress testified that a similar condition existed in Building B, such that freon had to be added to the system almost every other day, owing to leaks in the piping.

4) Twenty thousand feet of deteriorated film had been removed from vaults 9 and 10 five weeks before the fire, according to Mr. Murphy. This is in the immediate area identified by Chief Estep and Archives employees as the origin of the fire.

5) Four barrels filled with discarded film were stored in the corridor of Building A and were not in refrigerated vaults as they should have been. The door to the office at the end of the corridor was kept open; temperatures in the office were very warm, in the range of eighty to eighty-five degrees I would estimate.

When I sought to have a substantive discussion of these matters included in the report, Mr. Murphy expressed the view that dwelling on such matters would only make the agency look bad. I replied that to make the categorical statement that no conditions were present that would have caused spontaneous combustion would be going much too far. I told him I would not be able to sign such a report in good conscience.

Another matter raised in the discussion was the question of storage and handling of nitrate film in the National Archives building. Bill Hart, the committee chairman, dismissed it as of no concern to the committee. However, I continued to receive anxious inquiries from employees working in the building as to whether it was safe for the film to be kept in the building especially where it was not being kept in approved vaults. Immediately after the fire, several loads of film were brought into the basement laboratory and stacked 5 feet high along a corridor in the laboratory and in a small room about six-by-eight feet. The room contained 800 cans. An equal number was kept in the corridor. There are supposed to be only fifty cans in the laboratory at a time. According to lab employees the cans were kept there until Mr. Youso, the branch chief, learned that General Accounting Office auditors were going to make an inspection. The cans were then quickly moved out to a storage area outside the building. When the auditors came through the lab on their inspection tour, agency managers placed themselves between the employees and the auditors so that the employees could not address the auditors.

Sincerely,

*William T. a Hugh*

William McHugh  
Employee Representative  
Ad Hoc Committee  
To Investigate the Suitland Fire  
Room 407  
National Archives Building  
Washington, DC 20408

Mr. PREYER. Our next group of witnesses is from the Public Buildings Service, which has been responsible for maintaining the film vault building at Suitland and overseeing the installation of improvements such as sprinklers and air conditioning systems.

We appreciate your being here today, and I will ask you if you will stand and be sworn. Please raise your right hands.

Do you solemnly swear that the testimony you are about to give before this subcommittee will be the truth, the whole truth, and nothing but the truth, so help you, God?

[Chorus of "I do's."]

Mr. PREYER. Thank you.

What is the name of our spokesman? Perhaps you could give that for the record.

**STATEMENT OF DENNIS KEILMAN, ACTING COMMISSIONER, PUBLIC BUILDINGS SERVICE, GENERAL SERVICES ADMINISTRATION; ACCOMPANIED BY JACK GALUARDI, ASSISTANT COMMISSIONER FOR BUILDINGS MANAGEMENT; O. R. MAISCH, DIRECTOR, ACCIDENT AND FIRE PREVENTION DIVISION; RONALD MARIOTTI, CONSTRUCTION MANAGEMENT DIVISION; WILLIAM H. HART, ACCIDENT AND FIRE PREVENTION BRANCH; THOMAS E. GOONAN, FIRE SAFETY ENGINEER; JAMES HAWKINS, ACCIDENT AND FIRE PREVENTION BRANCH; MOY YIP, CONSTRUCTION ENGINEER; WALLACE SHIPP, BUILDING MANAGER, SUITLAND; AND, DENVER LIVINGSTON, OPERATING ENGINEER**

Mr. KEILMAN. I am Dennis Keilman, Acting Commissioner of the Public Buildings Service.

On my left is Jack Galuardi, Assistant Commissioner for Buildings Management. To my right is Russ Maisch, Director of the Public Buildings Service Accident and Fire Prevention Division. We have also Ron Mariotti to my extreme right; Tom Goonan; and Jim Hawkins.

Mr. PREYER. Thank you.

I understand you have submitted a statement for the record. Without objection, that will be made a part of the record.

[See p. 135.]

Mr. PREYER. If you would like to summarize your testimony, we would be glad to hear from you at this time.

Mr. KEILMAN. Thank you, Mr. Chairman.

We have submitted a lengthy and comprehensive document as a matter of record. There are some things in the document that I would like to go over quickly.

The fire at film vault A of the Suitland Federal Center in December 1978 was a devastating reminder of the need for improved protection of those records which have been entrusted to the custody and control of the National Archives and Records Service. Once lost, we recognize that such records, which are a living testament to the Nation's history can never be recovered.

We realize that much remains to be done to institute the necessary fire safety, and other improvements to the buildings which house these records. We can only assure you that our efforts in this area

are being given high priority. We are doing everything possible to make sure that the potential for another fire is minimized.

To go into some of the background, the three buildings— A, B, and C—were erected in 1945 in Suitland, Md., for use as a temporary nitrate storage vault. At the time of construction, it was estimated that these facilities would be used no longer than 3 years. The buildings are identical one-story structures of fire-resistant construction with 8-inch thick concrete block walls and reinforced concrete slab walls and roof. Each building contains 27 film vaults. Each vault is equipped with an individual horizontal explosion vent measuring approximately 51 inches by 38 inches. These vents are located on the outer wall at the end of the vault and are covered with cement asbestos board blowout panels.

The electrical installation in each storage vault complies with provisions of the National Electrical Code.

The GSA film storage practice is derived from National Fire Protection Association No. 40 Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film. GSA standards deviate from this standard in several respects.

According to the national standard, storage temperature is required to be 70° F. GSA maintains the temperature below 55° F. for longer film preservation. The NFPA Standard 40 requires two fire doors, a sliding door, and a self-closing swinging door. Sliding doors are difficult to maneuver quickly, and are not permitted for doors in GSA buildings in order to facilitate a quick exit in case of fire.

Also for safety reasons, a person working inside a vault is required to leave the door open, precluding a self-closing door.

The steel doors installed in the buildings are not therefore standard, but they are quite capable of withstanding the maximum fire in a vault and have so proved.

The walls are slightly substandard from NFPA 40 requirements, but have also withstood a full intensity vault fire without distress.

The sprinklers were designed to meet NFPA 40 requirements.

Perhaps I could say a few words about the fire in December 1978.

Work on the air-conditioning contract for building A was initiated in the summer of 1978. It continued intermittently until September when the contractor stopped all operations. It had become apparent that the new cooling unit provided by the contractor would be much larger than the one it replaced, and that it could not be hung over the vault doorway in place of the old one.

The contractor secured a change order to the contract to place the new unit at the opposite end of the vault and to remove two sprinkler heads from each vault to make room for the new unit. He was then to replace the two heads below the new unit. At the same time, the entire sprinkler system was lowered several inches to make room for the ceiling insulation.

Instead of removing and replacing the two sprinklers concurrent with hanging the new cooling unit, two sprinkler heads were removed from all the vaults in building A. The six sprinklers in each vault were reduced to four, a one-third reduction.

Prior to the day of the fire, the air-conditioning contractor had performed all hazardous operations, including gas-flame cutting and welding, power sawing, and power pipe threading outside the building.

The dismantling of the cooling system and the removal, relocation, and installation of sprinkler piping and valves were all performed with wrenches.

On the day of the fire, two employees of the air-conditioning contractor arrived at the Suitland Records Center at 7 a.m., without advance notice, after an absence of about 2 months. They brought with them an open-armature electric drill, ceiling bolts, and inserts. At that time, all vaults were fully utilized for film storage, and all but one vault contained nitrate film. The contract employees began at the north end of building A; they drilled four holes in the ceiling of each vault, and inserted four ceiling bolts in preparation for hanging the new air-conditioning units. After doing several vaults, they ran out of bolts but continued to drill holes.

The film vault supervisor arrived at the building at about 10 o'clock, complained about the dust being generated, and observed a number of vault doors open at the north end of the corridor.

At about 11:30, work stopped, and the two contract workers joined NARS employees in the office at the south end of the building to eat lunch. Ten vaults had been worked on.

Shortly after noon, smoke was discovered in the corridor of building A by the employees having lunch. The fire department was called, and the employees and the contractor's men left the building immediately.

The fire department, upon arrival, found the fire still burning, the building full of smoke, and sprinklers operating within. Four firefighters entered the building at the entrance at the south end. Two of them manned a hose line, and the other two opened vault doors in search of the fire. A second group was outside at the northeast side of the building breaking out explosion vents.

A sudden change in the character of the smoke prompted the fire chief to order his men out of the building. While the men were still inside but retreating, a backdraft explosion occurred which blew out an explosion vent, displaced a wall across the inside corridor, and injured firefighters inside, two of them seriously. The fire department retreated to a safe distance and applied water from the outside.

The fire progressed from vault to vault, with frequent minor explosions. As additional vaults became involved, 23 of the vaults burned. Approximately 12.6 million feet of film were destroyed.

Inspection of building A the day after the fire revealed that, due to the fact that the automatic sprinkler protection for the vaults had been altered, the level of protection had been reduced, thereby compromising the ability of the system to extinguish a fire effectively. Moreover, the waterflow alarm, installed in early 1978, was improperly connected and did not work.

I would also like to speak briefly about the investigation of the fire itself. We believe the immediate objective is to get the errors corrected to minimize the potential for fire. I think we ought to be looking, over the long haul, into the possibility of perhaps a completely new structure that would be designed to minimize all potential for this type of fire wherever we have these kinds of materials stored.

We also want to commend the response of the Prince George's County Fire Department and the professionalism of their organization in dealing with the fire. We feel they should be recognized for that.

With that, we would be glad to respond to the specific questions of the subcommittee.

Mr. PREYER. Thank you.

I guess one of the basic questions is: Why was the explosive nitrate film allowed to remain in the vault during construction work? Could you not have moved that out before you did the construction work?

Mr. KEILMAN. I would like to have the person who was responsible for the construction part of the work, Mr. Mariotti, respond to that.

Mr. MARIOTTI. As part of the upgrading of the air-conditioning system, we did require in our air-conditioning work contract, that the contractor move the film from the vaults and vacate four vaults at a time. We did not consider that this was necessary in performing sprinkler-type work. Sprinkler work is a relatively clean operation. It does not involve any hot work, and we have permitted that type of work in the vault areas on other jobs.

Mr. PREYER. The sprinkler system was reduced in this vault by about a third, I understand. You cut off two sprinklers. Is that not a very crippling limitation of the sprinkler system? How did you justify authorizing the work under that situation, Mr. Mariotti? Do you think there were sufficient sprinklers left?

Mr. MARIOTTI. The sprinkler work performed by the contractor was being done in advance of the major air-conditioning effort.

We had established that there was insufficient clearance above the existing sprinkler system to install the new system. The existing system had to be lowered.

We felt that this work could reasonably proceed in advance of the major contract effort; we recognized that, while we were compromising the system, this was a vault construction, heavily fire rated, and we did not feel that the loss of the two heads would be a substantial loss to that particular vault.

Mr. PREYER. You mentioned this was preliminary work to the more major work of installing the air-conditioning or modifying the sprinkler system. It did involve the use of power tools, I believe. Do you consider that hot work?

Mr. MARIOTTI. In the case of power tools, we had, through our safety organization, resolved at the beginning of this contract that the use of open-armature type devices would be inappropriate.

We had advised the contractor of that orally. On the day of the fire apparently the contractor's workmen did not recognize that prohibition.

Our construction inspection staff routinely inspect several jobs and do not monitor them on a full-time basis. On the morning of the fire, it was not recognized that a worker had brought that drill into the project.

Mr. PREYER. In preparing to do your air-conditioning work, why did you cripple all 27 units at the same time by reducing the sprinkler system? Why did you not take four vaults a time instead?

Mr. MARIOTTI. We felt it was a matter of economy of operating the air-conditioner with the sprinkler system.

In order to perform that work, we had to take the system out of service. As a matter of routine, we drained the system down in the morning, operated on as many of them as we could in order to accomplish the work, and turned the system back on in the evening. We felt that

that was the most expeditious and economic way to accomplish it. We anticipated that the ongoing air-conditioning work would follow promptly and that this deficiency would not exist for an extended period of time.

Mr. PREYER. Actually, it did not follow on until about 3 months or so, did it?

Mr. MARIOTTI. What happened was this: In preparation for getting the work started, we discovered that there was a lack of electrical capacity at the site to accommodate the powering-up of the chillers which we were converting, which precluded our taking the existing system out of service.

Mr. PREYER. So, they operated out there with a crippled system for some 3 months before there was any need to cripple them.

Mr. MARIOTTI. That is true, sir.

Mr. PREYER. On the air-conditioning, is Mr. Hawkins here?

Mr. HAWKINS. Yes.

Mr. PREYER. I believe you have said that you did not inspect the air-conditioning project and that, because you are chief of the accident and fire prevention branch, you only inspect fire prevention work. Is that correct?

Mr. HAWKINS. Yes, sir.

Mr. PREYER. Where you have a condition like this, would not the air-conditioning in a vault that stores nitrate film be considered a key part of fire prevention?

Mr. HAWKINS. Yes, sir; it would be considered part of fire prevention.

Mr. PREYER. At the time, did you realize that, or is this through the new policy?

Mr. HAWKINS. I would like to say this. We do have in our organization construction safety engineers. These people are the ones who go to the job site and visit. They are the ones who established the four-vault separation.

As far as the air-conditioning goes, I do not quite understand your point, I guess.

Mr. GALUARDI. Mr. Chairman, maybe I can help clear up a little here.

PBS is organized in such a way that we have a central office organization and a field office organization in Washington, D.C.

Within the field organization, there are separate units. Mr. Hawkins is head of the accident fire prevention organization. The purpose of his fire prevention activities is to look at buildings and inspect them for the purpose of determining what is right or wrong. He also has the responsibility for looking at the plans and specifications which are developed to determine whether or not they conform to the standards and the guidelines.

Mr. Mariotti represents the construction and management organization. Their purpose is to see that work which needs to be done by contract is put together in a proper set of plans and specifications and then awarded for the purpose of seeing that the work gets done by a contractor.

The actual inspection of the work which needs to be done is handled by Mr. Mariotti's organization. The guidelines come from Mr. Hawkins. Mr. Hawkins does not go out and look at the construction proj-

ects to see, on a day-to-day basis, what is being done by the contractor. That is the responsibility of Mr. Mariotti's organization.

Mr. Mariotti, if he has any questions about anything having to do with accident, fire, and safety, is to go back to Mr. Hawkins and seek advice and guidance. But the responsibility for the day-to-day inspections is not Mr. Hawkins'.

Mr. HUTCHENS. Mr. Chairman, if I may—

Mr. PREYER. Mr. Hutchens?

Mr. HUTCHENS. Does this mean that during construction project there are no fire safety personnel who examine the work that is actually going on?

Mr. GALUARDI. There is so much work going on—in the millions of dollars—and there are only a limited number of resources available.

The answer to your question is yes—someone is not out there every day looking at a job. On an occasional basis, Mr. Hawkins' organization will get out and inspect to see whether or not the guidelines and the procedures which were put into the contract are being followed.

Mr. HUTCHENS. Along the same lines, it was mentioned before, that the contractor had been warned not to use a power tool. In fact, had not the contractor frequently used power tools before on that job?

Mr. YIP. I cautioned the contractor. They were using an open armature drill in the area of the workroom which is not subject to the requirements. In those particular locations, people are allowed to smoke, and also, a non-explosion-proof light fixture has been permitted to be installed there.

Mr. HUTCHENS. Why had you not told the contractor the day of the fire not to use that power tool?

Mr. YIP. At that particular time, I did not have time to check with the contractor because I was involved in trying to resolve a deficiency of electrical power.

Mr. HUTCHENS. But you were at the project site on the day of the fire?

Mr. YIP. Yes, sir. But I was not at the building where the fire occurred. I was working with two of the OSHA engineers concerning the rectification of the design deficiency involving the electrical equipment. Therefore, I did not have time to survey what the contractor was doing at that particular time.

Mr. HUTCHENS. Thank you, Mr. Chairman.

Mr. PREYER. I will ask one more question before turning it over to Mr. Kindness at this time.

The Archives tells us it is going to take about another 2 years to convert the remaining nitrate film to safety-based film.

Are you doing anything about the humidity aspect, in particular, of this vault to protect it during this next 2-year period? What are you doing in general, or do you think anything needs to be done to protect the safety of the remaining film for 2 years?

Mr. KEILMAN. Mr. Chairman, in answer to the last part of that question—should something be done—the answer is yes. Our central office fire safety people are working with the regional office people and with the Archives people to agree on what measures should be taken for this short period of time.

As I think we heard earlier this morning, the original scope of the work had been more comprehensive than that which we are talking about now because we were talking about a longer period of time.

Mr. PREYER. Thank you.

Mr. Kindness?

Mr. KINDNESS. Thank you, Mr. Chairman.

On Tuesday, we heard about a lack of coordination between the Prince George's County Fire Department and GSA with respect to the fire and the lack of any preplanning for such an emergency situation.

Does the Public Buildings Service have any policy—whether in writing or otherwise—with regard to preplanning for such situations?

Mr. KEILMAN. Mr. Kindness, I would like to ask Mr. Galuardi to answer that. He is quite knowledgeable in that area.

Mr. GALUARDI. The Public Buildings Service has an institutionalized system for all of its buildings. You have to realize that we have, I believe, some 10,000 different locations.

Mr. KINDNESS. That is exactly why I am asking this question.

Mr. GALUARDI. It is a very large problem, and you have to realize the amount of effort needed to do that kind of work.

We have prepared building and facilities protection programs. The programs require that you go to every building and work out a scheme or system whereby you worry about the people who are employed in the building, the way it is put together, how you get them out, what happens when there is a fire, et cetera.

GSA does not have a sufficient number of people to staff all that activity. So, what we normally do is place the responsibility either upon the occupant of the building—the agency which occupies it—or, if there is more than one agency in there, the largest agency. They, in turn, have to establish a system to work out a protective plan.

This building is a little different from the normal Federal building because, as you can see, it is more of a storage vault with a very small operating unit within it.

So, in a sense, NARS would be the organization which would be responsible for establishing at least some plan to protect the people who are in there.

You have to realize that, in addition to this type of hazardous material, we have many other hazardous types of materials to protect. For example the Federal Government stockpile; we have sisal and other kinds of hazardous material.

It is our normal practice to ask our regional offices to work with the local fire people and have them come in and inspect each location. There are jurisdictional problems in many instances because there are buildings in which we have exclusive jurisdiction and in which the local community is sometimes not authorized entry, or we ask them to come in and they will not come in. I do not believe we had that problem with the Prince George's Fire Department; in fact, I know we do not have it. They have been an excellent group to work with.

People are supposed to come in. Whether or not, in the far distant past, this was worked out, I do not know. I would have to say it probably has not been worked out in the recent past. Perhaps I will have to rely on Jim Hawkins to answer that part—as to what we actually did.

But as for whether we have a policy, yes, we do have that; we do encourage it, and we should insist on it.

Mr. KINDNESS. Are there guidelines that are in writing or some sort of program description?

Mr. GALUARDI. The facility self-protection program is in our handbook and is promulgated through the field organizations.

Mr. KINDNESS. Might we be provided with a copy of that for our records, please?

Mr. GALUARDI. Certainly.

Mr. PREYER. Without objection, it will be included in the record at this point.

[Material available in subcommittee files.]

Mr. KINDNESS. I gather from your response that, where other governmental agencies have fire safety officers or people who perform that function, it is not duplicative in nature but rather for the implementation of the PBS policies described, and that there is an attempt to coordinate that in some degree through your personnel. Could you describe to me whether there is any regular program of checking—spot checking—to see how these programs are being implemented on the local level?

Mr. GALUARDI. We are going through that right now. We are finding that other agencies often are not paying enough attention to these programs. We have just gone through this, and we find we have a lot of deficiencies in the self-protection system. A renewed emphasis is currently being placed on that.

It is hard to keep up because so many people change in agencies, and they sometimes forget that this plan is in existence until they have a disaster, as you have right now. Once you have the disaster, everybody runs out and takes care of it again. That is where we stand right now.

We have to realize that we have to do this over and over again.

As an example, you may be named a warden for this ward; in the meantime, you are moved somewhere else, and the head of the agency forgets to name a new person. So, it takes renewed effort.

Mr. KINDNESS. We have been speaking largely in terms of fire safety, but, in fact, does the program you have just described encompass more than that in terms of other types of disasters that might occur?

Mr. GALUARDI. Yes. We have a separate concern which is required of us right now—the health hazard program. I think the country as a whole has begun to place more emphasis on health hazards with regard to the asbestos we have in buildings and the effects on employee health, for instance.

We have instituted a new system. We require the regional offices to institute annual inspections, to hire people who have this type of expertise and background. Before, we had people who were concerned about the structure and fire prevention; we are moving over in the direction of employee health.

Mr. KINDNESS. But your program generally would encompass the sort of evacuation plans required by the others?

Mr. GALUARDI. That is what the facility self-protection plan is. That was the evacuation route, establishing wardens, seeing the people out; and, if there are handicapped people in the building, seeing that they are taken care of and not abandoned.

Mr. KINDNESS. It would encompass all risks, not just fire, presumably.

Mr. HAWKINS. That is correct.

Mr. KINDNESS. With respect to the Suitland location, Bunker A, are you aware of whether the Public Buildings Service ever surveyed the film vaults there prior to the 1977 fire, or whether Mr. Hawkins

or his people did anything by way of particular attention to that building?

Mr. HAWKINS. Of course, you have the memo where, just after the installation of the sprinkler system in 1974, our region did carry out hydrostatic tests. At that time, we found many leaks throughout the system. We sent that information to the central office. Also, I believe there is a memo which transmitted that information to the Universal people. That was in our contract.

Mr. KINDNESS. An outside contract—you mean in terms of the installation?

Mr. HAWKINS. Yes.

Mr. KINDNESS. By that, do you mean that it was installed pursuant to a contract entered into by Universal and the contractor, rather than between the Government and the contractor?

Mr. HAWKINS. Yes.

Mr. KINDNESS. Do you have knowledge from your reports or records as to whether the sprinkler system was determined to be a deluge system functionally or not?

Mr. HAWKINS. I am sorry. Could you repeat that?

Mr. KINDNESS. Do you have any records, or anything in writing, or any personal recollection, as to whether it was determined at that time that the sprinkler system was a deluge system or in fact, a conventional system?

Mr. HAWKINS. Our visit to the job site was not to inspect the type of system. We went out there for a hydrostatic test to check and see if the system was leaking. It was.

Mr. KINDNESS. You were attempting to determine whether it was leaking, rather than whether it was functional.

Mr. HAWKINS. Yes.

Mr. PREYER. Would the gentleman yield briefly on that?

Mr. KINDNESS. Yes.

Mr. PREYER. From your inspection, was it not obvious that it was not a deluge type system—that it had closed heads?

Mr. HAWKINS. Yes, sir. It was. As a matter of fact, in any system, deluge or not, for a hydrostatic test, the link will remain in the heads during this test period. That is the only way you can test it.

After the test has been completed, the proper action is then to remove the links out of the heads. So, at the time we were there, yes, the links were in it.

Mr. PREYER. Thank you.

Mr. KINDNESS. Did your responsibility end at that point with respect to what was discovered, or is someone else supposed to take over at that point?

Mr. HAWKINS. I felt we let the proper people know that the system had very many leaks in it.

Mr. KINDNESS. Would your inspection have included a determination of whether the valving in the system was appropriate for a deluge system?

Mr. HAWKINS. No, sir. It would not. Our inspector was out there and working that day. I am not a sprinkler expert. His particular job was to witness the hydrostatic test.

Mr. KINDNESS. Was that for the purpose of approving the performance of the contract?

Mr. HAWKINS. No, sir. We do not accept contracts in our particular operation.

Mr. KINDNESS. What brought about this hydrostatic test? Why was it performed?

Mr. HAWKINS. That is a normal thing—to perform a hydrostatic test on a sprinkler system. I believe the central office notified us that they were ready to do it, so we went ahead.

Mr. GALUARDI. The purpose is to see that the system is installed and is able to withstand the water pressure.

Mr. KINDNESS. Would this be done on more than one occasion? Would it be done on a periodic basis normally?

Mr. HAWKINS. No. That test is done on completion of the job. After that, of course, the links would be removed.

Mr. GALUARDI. In larger buildings, this is done progressively, but in a small building like this, it would be done only one time.

Mr. KINDNESS. Mr. Chairman, I believe, because of the bells—

Mr. PREYER. That is a notice quorum. We have a few more minutes.

Mr. KINDNESS. In the testimony concerning the building involved in the fire, it was described as being temporary in nature but still in use since 1945.

Would there be a different set of standards applicable to such a building if it were originally designed for more permanent use, or would it, given the time when it was constructed, be pretty much the same sort of building?

Mr. GALUARDI. I believe that the nature of the material that we would use probably be very different. It had concrete block walls. It had doors that probably would have been much better. The scaling down of the project from permanent to temporary would allow using more temporary type materials.

Mr. KINDNESS. In your opinion, would that have any bearing whatsoever on the occurrence of this fire? That is, would the doors have been of a different sort? Might fire doors have been installed if it were a more permanent building?

Mr. GALUARDI. I am not technically qualified enough to talk about the type of fire doors in the building.

When you are setting standards like this, however, in trying to put something in, you ought to have a full-scale test to determine whether or not what is required as standard works. We have done this for NARS on a lot of occasions. How you put papers together, whether you have to keep them in self-enclosed containers, how high the sprinkler system must be, how large an area you can have without a fire wall—all those kinds of things are sometimes speculated on a technical basis and oftentimes must be tested.

The test was that we have had another fire. We had a fire in 1977 in which the vault structure, as it was constructed, performed ably. It did contain the fire within the vault. Therefore, in asking if it was adequate or not—yes, adequate enough to sustain it under a full-scale test.

Mr. KINDNESS. In essence, the building probably would not be designed much differently if it had been intended for more permanent usage?

Mr. GALUARDI. I think, by today's standards, we would have had to upgrade it considerably more than at the time it was built, but at the time it was built, it was adequate.

Mr. KINDNESS. All right.

There has been some degree of inference that the doors were an improper type of door, and so on. But it is as they say, "You had to be there." Back in 1945, it probably was not an unreasonable judgment.

Mr. GALUARDI. It was probably a very good one then.

Mr. KINDNESS. In the statement, there is language to the effect that, "It is of concern to insure that immediate steps are taken to reduce the likelihood of another occurrence."

Since the December 7, 1978 fire, what steps have been taken—if you could summarize that—and the Public Buildings Service function is what I am trying to isolate here to see how well we might coordinate better as between the using agency and the Public Buildings Service in making sure these things are effectively done.

Mr. KEILMAN. Mr. Kindness, I would like to defer that question to Mr. Hawkins as he is in the regional office and can deal with what has been done since the fire, specifically.

Mr. HAWKINS. I am going to have to have a little help from the people on the ad hoc committee because they have been following that closely. So, I would prefer that Mr. Hart, the chairman of the ad hoc committee, who made the recommendations and who has a current knowledge of what is going on, answer that.

Mr. HART. At the present time, there is a contract being prepared to convert the existing sprinkler systems in buildings B and C, into a true deluge system. The original contract that called for the HVAC work was canceled, and a different approach was taken.

We are taking the existing system and modifying it to make it more reliable by providing a second compressor. The specifications at this point have been drawn up. We have had conversations with the rest of the members on the ad hoc committee, with members of NARS, as to how the work would be accomplished in those vaults, whether they would be vacated, and what cannot be accomplished.

This contract, I think, is in preparation now. If it is not out for bids, it soon will be, and the work is supposed to be started in the fall.

Mr. KINDNESS. With respect to interaction with the local fire departments, and so on, are there any recommendations there that are within the scope of your ad hoc committee's function?

Mr. HART. As a general practice at GSA, when we make surveys, we request the building manager to invite the fire department in to nearby facilities for a familiarization tour, the door is always open. This is a longstanding recommendation. When we do surveys, we always, first of all, check with the building manager to find out if he has established any sort of rapport with the fire department.

Since the 1978 fire, the building manager has brought in the fire department, and the fire department has had a tour of the entire facility, not just the vaults.

In prior years, the fire department has been invited out to the facility. An example of this would be during Fire Prevention Week. We work with the fire department for the various programs we have during that time.

To go back further—and this is recollection—the fire department was taken on a tour of the Federal Records Center out there. As a result of conversations with them and this inspection, I think they had made certain recommendations as far as water supply to the facility

is concerned. Since that time, to upgrade the facility, we have put in a new water main to make it more reliable as far as the water source protection goes.

We have extended stand pipe and hose systems in the Records Center, at the recommendation of the fire officials.

Mr. KINDNESS. I thank you, gentlemen.

Thank you, Mr. Chairman.

Mr. PREYER. Thank you.

Is Mr. Shipp here?

Mr. SHIPP. Yes, sir.

Mr. PREYER. I believe you are the building manager at the Suitland field office.

Mr. SHIPP. That is right, sir.

Mr. PREYER. Evidence has shown that the alarm that was supposed to sound in the guard's office when the sprinkler system went off in building A did not function properly.

Could you tell us why that failed to operate?

Mr. SHIPP. Yes, sir.

There is a line from Federal building 3 to the film vault A—one line. The contractor had taken out the only line and was installing his system in that line. So, at the time of the fire, it did not work. Also, the power was off, so it did not work for that reason.

Mr. PREYER. When it was originally installed, was it tested and approved?

Mr. SHIPP. Yes, sir.

Mr. PREYER. And it was working satisfactorily?

Mr. SHIPP. Yes.

Mr. PREYER. When this contracting work was being done, it was disconnected?

Mr. SHIPP. Part of the contract was to run a new system, but it did not work on the day of the fire. It is working now.

Mr. PREYER. He was to install some sort of temporary system?

Mr. SHIPP. The other lines were out—he took the other lines out of the conduit and ran his lines through. It was hooked up incorrectly and did not function on the day of the fire.

Mr. PREYER. So, when he ran in his lines, it was never tested by anyone as to whether it would work or not?

Mr. SHIPP. No. The fire alarm people did not test that operation.

Mr. PREYER. When was the last time that the sprinkler alarms were tested in buildings B and C?

Mr. SHIPP. They are checked weekly. They were checked last week. But not that particular alarm. It was under contract.

Mr. PREYER. Is Mr. Livingston here?

Mr. LIVINGSTON. Yes, sir.

Mr. PREYER. I understand you are the man who would be responsible for the air-conditioning side of things.

Mr. LIVINGSTON. Yes.

Mr. PREYER. Were you in charge of maintaining the air-conditioning?

Mr. LIVINGSTON. Yes, sir.

Mr. PREYER. There was some testimony, I believe, from a workman on an air-conditioning contract in building A. He told the firemen that he heard the air-conditioning unit cycling. That is, it was cutting on and off because it was low on Freon.

When was the last time that air-conditioning unit had been checked?

Mr. LIVINGSTON. I checked it the morning before the accident. They open up the gates about 6:30. I go in and check all three vaults. So, at the time I checked them, all the air-conditioning was working.

Mr. PREYER. You check them every morning?

Mr. LIVINGSTON. Every time.

Mr. PREYER. When was the last time that Freon was put into the air-conditioning units, do you recall?

Mr. LIVINGSTON. In the time I have been working there, I have not had to put in any Freon whatsoever.

Mr. GALUARDI. Mr. Chairman, could I say this for the record? Air-conditioners do cycle from a lack of Freon. They also cycle as a result of lack of load. That is, during the period of the year when it is cold, your refrigeration system is likely to cycle because the outside temperature and the inside temperature are closer together. With light loads, the machine turns on and off more rapidly. This was the time of year when you would expect that that might possibly occur. Whether it is or not, I am not able to say.

There is a condition that occurs with a lack of Freon. I am told, where, when you have a lack of Freon—just as if you ever had a window air-conditioning unit in your house with a lack of Freon—it ices up. Therefore, what you get is an icing condition.

Everyone I have asked about this has said there was no evidence of any icing occurring there. Whether or not there was a lack of Freon, I cannot tell you. I am just giving you some facts for the record.

Mr. PREYER. Thank you. Mr. Kindness?

Mr. KINDNESS. Another aspect we have not really pursued with respect to cooperation with local governments and in the very broad sense of your public buildings service function is this. How do you go about working with local governments, or encouraging that this be done by the agencies occupying the buildings, in terms of zoning and development in the area? That is one aspect. And the other is in terms of how a site owned by the Federal Government, such as this one at Suitland, is developed.

Given the fact that the nitrate film storage buildings have been there for a number of years, how do you tend to assure that other types of development that are not really compatible are avoided?

Mr. KEILMAN. You ask a general question about how we do this as a matter of agency policy. It is a matter of agency policy that we coordinate these kinds of things and, as a practical matter, everything we do at the working level with the local communities.

For instance, if we are planning a facility, we deal with the local community rather intensely. It is not only a matter of policy, it is a matter of law; under the Intergovernmental Cooperation Act and OMB Circular A-95, we are required to do this, and we do do it.

Our regional office, which is headed by a regional administrator, has the responsibility for the operating aspects of it. In terms of a specific location such as this, not only would the regional office typically be involved, but more importantly, the building manager would also deal with the local community.

We have some problems in dealing with the local communities when we have exclusive jurisdiction. This means that the Government, of course, is not necessarily entitled to local services, nor are local juris-

dictions entitled to come onto Government property. We try to work those things out. In some cases, we cannot.

Just this week, I was out in Denver. We have a Federal facility out there. We have our own fire department because the local community cannot provide the fire service.

This is not the case at this facility. I understand that we have worked very closely with the local community to deal with the kinds of things you are talking about.

If you are changing the use of the facility, yes; we should be working with the local community on that. It is our policy that we conform to the local zoning requirements. It is not a matter of law; it is a matter of policy.

Mr. KINDNESS. On the other hand, if the local authorities permit the development, let us say, of two gasoline service stations in the proximity of a facility like these bunkers, I could readily understand that this is something on which your regional office people and the building manager might not have any particular say, except perhaps through a close working relationship with the fire department.

Mr. GALUARDI. Actually, in many communities, a property owner will send us a notice of something like that.

GSA has been developing a master plan for the Suitland complex. Part of the complex is split by a highway. Right now, the Smithsonian is proposing a large facility on the other side of the highway. I know there have been many meetings with Mr. Kelly, the previous head of the Prince Georges County Government, in the development of that specific proposal.

We have met with them on the development of the rest of the site. So, there have been many, many meetings over the past 4 or 5 years on that Suitland complex.

Mr. KINDNESS. The nub of it, though, is that these intergovernmental functions are generally carried on through the regional office people. Is that correct?

Mr. KEILMAN. Yes, sir.

Mr. KINDNESS. Thank you, Mr. Chairman.

Mr. PREYER. Thank you. Are there questions from the staff?

Mr. HUTCHENS. Yes. Thank you, Mr. Chairman.

Mr. Livingston, do I understand from your testimony that Freon was never put into that air-conditioner in Building A?

Mr. LIVINGSTON. They have added it. But not on my shift. Maybe in the daytime. We have three shifts. Each shift checks it out each day.

Mr. HUTCHENS. Mr. Shipp, do you know the last time that Freon was put in those air-conditioners—prior to the fire, of course.

Mr. SHIPP. Is it put in frequently. They are putting it in all the time.

Mr. HUTCHENS. One day? Two days? Five days?

Mr. SHIPP. At least once or twice a week, they would call and say the temperature would be going up. Then we would have to respond and would add Freon. We were adding Freon because we could not repair the system.

Mr. HUTCHENS. I believe I asked you a week ago whether there were any work orders.

Mr. SHIPP. We could not find them going that far back.

Mr. HUTCHENS. Mr. Mariotti, I do not know whether this should be addressed to you or one of the other gentlemen. Getting back to the deluge system, Mr. Hawkins' fire prevention branch indeed noticed in October 1977, that the sprinkler system which Universal had installed was not a deluge system and recommended that it be modified.

Whatever happened to this recommendation?

Mr. MARIOTTI. I have no idea.

Mr. HUTCHENS. Mr. Mariotti, did you receive this recommendation—or anybody in construction management—or anyone in the Public Buildings Service?

Mr. HART. That memorandum back in September 1977, drawing attention to the heads, was sent to the buildings manager.

Mr. HUTCHENS. Mr. Shipp, I know you were not in that office at the time, but does your office have any record of receiving that recommendation, and if you do not know at the moment, could you please supply it for the record?

Mr. SHIPP. Yes.

Mr. PREYER. Without objection, it will appear in the record at this point.

[The material follows:]

10/17/77

Chief, Accident and Fire Prevention Branch (3POA)

Automatic sprinkler protection, Cellulose Nitrate Motion  
Picture Film Storage Building A, Suitland, Maryland

Buildings Manager, Suitland Field Office (3PFSS)  
Thru: Manager, South Area (3PFS)

A recent inspection by Accident and Fire Prevention Branch of the high speed deluge water spray automatic sprinkler protection systems in the subject building revealed that all sprinkler heads in the 27 film vaults are closed heads. Open head deluge systems were to be installed to limit the spread of a rapid burning fire. In areas within the building other than film vaults, sprinkler heads are of the standard closed head as required. We recommend that necessary action be taken by group forces immediately to provide open sprinkler heads for the 27 vaults in order to achieve a high speed deluge automatic sprinkler system for each film vault.

This may be accomplished by removing the fusible link element from each existing sprinkler head.

If there are any questions, please contact Mr. Andrew F. Przekop, Accident and Fire Prevention Branch on 472-1618.

James A. Hawkins

JAMES A. HAWKINS  
Chief, Accident and Fire Prevention Branch

cc:

Official file (3POA)

Reading file (3POA)

Facility file (3POA)

3PFSS

3PFS

NNV

3N

3POA:APrzekop:ghr:10/17/77 x 21618

Mr. HUTCHENS. A month earlier than that, the Public Buildings Service let a contract to duplicate the sprinkler system in the adjacent vault buildings, Building B of the Library of Congress and Building C, also of the Archives. Again, the contract called for a high-speed deluge system in each building; but, again, a conventional sprinkler system was installed.

Can anyone explain how this error was compounded again?

Mr. HART. At that time, the system that was first proposed had the valves included. It was determined at that time, due to our policy about valves and our requirement for providing tamper switches as a cost benefit, that the valves were not needed. It was felt by the individual, I am sure—and this is strictly speculation—that the system could be activated without the particular valves in question.

Mr. HUTCHENS. Maybe we can get a little closer to this in the next question.

In November 1977, 2 months later, the contractor who was installing the sprinkler system raised the question of needing additional fixtures to make the system a true deluge type.

Mr. Mariotti, again as the delegated contract officer for this project, shouldn't this question have suggested that PBS was not getting the deluge system for which it had contracted?

Mr. MARIOTTI. No, sir. It did not.

The contractor suggested the valves, and the context of the discussions at that time related to the manner in which the system could be activated. In order to activate it with a valve, it was a very simple matter of turning the valve off and activating the deluge device.

Without that system, you must leave the sprinkler heads in place, pressurize the system, and then drain off the line, which is a much more extensive procedure. At that time, the contractor simply suggested it was not part of his contract.

We recognized and expected that there would be some leakage initially in draining down the system. What we did not recognize and did not find out until much later—and upon advice of the valve manufacturer—was that the deluge valve leaks through normally. We did not have the facility of a drain on the sprinkler system to carry that leakage out. So, we left the sprinkler fuses in place to preclude leakage on the film.

Mr. HUTCHENS. I notice also in the record, Mr. Mariotti, that on February 7 of this year, exactly 2 months to the day after the fire, you decided against making the modifications necessary, citing economic reasons.

Did you weigh these economic reasons against the risk of perhaps another vault building explosion?

Mr. MARIOTTI. The sprinkler system operating as a wet pipe conforms with the code criteria. Our view was that, in order to procure this by a change order or a sole source procurement with the contractor, we would wind up in a very expensive operation. We resolved that we would procure it separately.

Also, we had to consider the working conditions under which we would establish the contract parameters—how we would actually accomplish this in the vaults. At this point, we resolved that, for this new work where we contemplate the contract coming out this fall, we will vacate the vaults before we perform any work in them at all.

Mr. HUTCHENS. Obviously, there was a change of thinking on the whole picture. I think an estimated cost was \$62,000.

Mr. Keilman, do you know what the thinking was in reversing the decision?

Mr. KEILMAN. That kind of decision would be made by the regional commissioner, I would think. I am not personally aware of it. Is there anyone here who is knowledgeable on this?

Mr. HUTCHENS. What was the thinking that went into reversing Mr. Mariotti's decision to install additional fixtures to make it a true deluge system at a cost of \$62,000?

Mr. HART. Without the valve, given any particular incident, you cannot take one system out—you have to shut the whole building down. Instead of taking one vault out, you now have 27 vaults out of service.

Mr. HUTCHENS. My last question, Mr. Chairman, is this:

Does anyone have an estimate of how much this modification work, subsequently approved, would have cost, if it had been done during the life of the contract, the bid on which was \$103,000? How much more is it costing, inflation factor granted, to do the work now—

Mr. KEILMAN. As opposed to doing it separately on a competitive figure?

Mr. HUTCHENS. If it had been done when it was supposed to have been done.

Mr. KEILMAN. As opposed to a modification of the existing contract? Do we know what it is—is that what you are asking?

Mr. HUTCHENS. Can anyone estimate how much it would have cost when it was supposed to have been done?

Mr. GALUARDI. It would be pure speculation. We could probably supply it for the record.

Mr. HUTCHENS. Thank you, Mr. Chairman.

Mr. PREYER. Without objection, it will be included in the record at this point.

[The material follows:]

The comparative cost of modifying the sprinkler system in building A now, by separate contract to equip it to act as a deluge system, is estimated at \$85,500, as opposed to \$94,000 to make the changes by change order. An estimate of \$50,000 for the changes, previously quoted, is inadequate because the scope of work was unacceptable. The price was based on working in the vaults containing nitrate film. The revised estimates are based on film removal prior to work, no work involving large-scale handling of film in hot weather, and work in one building at a time. Cost escalation is due to institution of safeguards which greatly extend the length of time to accomplish the work, and film handling.

Mr. PREYER. Mr. Ingram?

Mr. INGRAM. Mr. Chairman, I have just one question for Mr. Hawkins.

We had spoken earlier with Dr. Rhoads about the Lansburgh's Department Store which is currently used—or at least the top three floors of the building—by the National Archives for storage of certain limited documents and audio-visual material.

In December 1975, when you signed your name and approved the building as meeting GSA fire safety standards, you noted that the type of construction in the building did not meet GSA criteria, as earlier referred to in your June 4, 1975, memo. I have copies if you wish to refresh your memory.

Mr. HAWKINS. I would like to do that.

Mr. PREYER. Without objection, they will appear in the record at this point.

[The material follows:]

UNITED STATES OF AMERICA /  
GENERAL SERVICES ADMINISTRATION



DATE JUN 4 1975

Region 3

Washington, DC 20407

REPLY TO: Chief, Accident and Fire Prevention Branch (3POA)  
ATTN OF:

SUBJECT Prelease inspection report of the  
Lansburgh's Building  
Washington, D. C.

Director, Space Management Division (3MR)

This confirms our discussions of the subject building with Mrs. Doris Frankenfield and Mr. Albert Herndon, as a prelude to responding to your memorandum of May 27, 1975.

The building, which is to be used as record storage, does not meet GSA Building Firesafety Criteria and does not comply with facility standards set forth by National Archives and Records Service (NARS). The basic structural deficiencies listed below cannot feasibly be corrected.

1. The floor load is rated at 100 pounds per square foot (psf)--the NARS standard is 300 pounds psf.
2. The subject building's type of construction is classed as ordinary--NARS standards require fire resistive construction.
3. The existing sprinkler system is about 50 years old and untested. The standard design of sprinklers 50 years ago is far subordinate to NARS standards of hydraulically designed minimum delivery rate of water application of 0.30 gallon per minute, per square foot.
4. The space is not separated by fire walls into individual record storage areas of 40,000 square feet each, as required by NARS standards. Enclosed, is a copy of the referenced standards.

As a result of the serious record center fire in the Military Personnel Records Center in Overton, Missouri, on July 12, 1973, the Administrator has appointed a special advisory committee to review existing Federal records center standards as applied to both archives and records centers.

Pending the report of that committee all designs of archives and records centers and work projects undertaken in these facilities will be coordinated through the Accident and Fire Prevention Division, (PBA), Public Buildings Service. By copy of this memorandum we request PBA to review this proposed acquisition.

*J. S. Hunt* FOR

HENRY S. HUNTT, JR.

Chief, Accident and Fire Prevention Branch

Enclosure

FEDERAL ARCHIVES AND  
RECORDS CENTER FACILITY STANDARDS

For nearly 25 years the growth of the "records center" as a facility for storing, processing, and disposing of records not active enough to be kept in high-cost office space and equipment has become a necessary adjunct to the successful management of records. The archival aspect, special handling of certain permanent records at the centers, has developed only recently.

The right kind of building is a "must" for an economical operation. The elements outlined below are considered of major importance in achieving the purpose of centers. These standards, considered minimal, shall be applied to the extent feasible by NARS Regional Commissioners and Center Directors, when it becomes necessary to develop, in concert with Regional PBS, new facilities or to repair, improve, alter or extend existing structures. At each stage of design, the drawings and specifications shall be submitted to the Archivist on a timely basis for review and approval.

1. Center structures should be simple in style and functional in arrangement. Permanent-type construction is essential. Concrete block with brick facade lends itself to this kind of construction especially well. In areas of high earthquake incidence, reinforced concrete construction, including tilt-up wall-type, may be more appropriate. The site should be of sufficient size to include space for paved parking and vehicle maneuvering, and should be near a main arterial highway. In general, one-story buildings should be provided for centers requiring less than one million cubic foot records storage capacity. Two-story buildings are desirable for centers requiring one million or more cubic foot records capacity, provided the site will lend itself to the use of trucking docks at both levels. Existing storage-type buildings must be considered when their location and physical characteristics permit safe and economical operation, thus avoiding the cost of new construction.

2. Center buildings should be individual structures, sufficiently separate from other buildings and external hazards to insure a high degree of safety from fire, flood, and other possible disaster. Any expansion space should be provided on a contiguous basis. An appropriate building identification sign (or lawn sign) should be provided as follows:

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FEDERAL ARCHIVES AND  
RECORDS CENTER

General Services Administration

3. Centers should normally be sole occupants of their buildings. Where they share space with other occupants, adequate precautions should be taken to eliminate fire hazards by separation fire walls and by other protective measures.

4. A minimum live floor load of 300 pounds per square foot is required for all records storage areas, with 100 p.s.f. minimum for office areas. Live load requirements for roofs depend on the geographical location.
5. Whenever practicable, ceiling height throughout the records storage area shall provide a stacking height for 14'-box shelving completely clear of ducts, pipes, etc., as follows:
- Top of stored boxes of records 14' 1".
  - Low point of stack light fixtures 15' 1".
  - Low point of sprinkler deflector heads 15' 7".
6. Columns should be arranged to avoid the need for expensive roof trussing, yet permit optimum stack space use by elimination of only one standard 30" x 42" shelving unit per column.
7. A vault of 8" reinforced concrete (6 sides) for the storage of security classified records is required. The vault door shall be Class 5 as detailed in Federal Specification AA-D-600B of March 1969, as amended. Duct openings in the vault, for air conditioning, shall be equipped with appropriate security barrier. The vault shall be 4-hour fire resistant, to the extent feasible. (See item 13, below, fire area.)
8. Loading docks should be similar to those in any first-class warehouse, with sufficient space to accommodate simultaneous loading and unloading operations for at least two trailer-type trucks. They should be in enclosable (interior) space. The dock should be 3' 5" high and equipped with power-operated adjustable dock ramps (levelers).
9. The general scope and requirements for the electrical facilities which should be provided include:
- Primary electric power supply and transformers.
  - Fire alarm system
  - Anti-intrusion and security systems
  - Smoke-detection system
  - Lighting circuits and fixtures
  - Air conditioning (office spaces)
  - Temperature and humidity controls for archival, vault, magnetic tape and film storage areas
  - Reproduction equipment (including microfilming)
  - Battery charger for forklifts
  - Adjustable dock ramp levelers
  - Electrical outlets on alternate columns in all records storage areas
  - Motorized roll-up doors at truck docks
  - Elevators (when required)
  - Telephones

10. Centers require the following minimum standards for illumination at 3' 0" height above floor level:

<u>Location</u>		<u>Foot-Candles</u>
Records storage space	Fluorescent (direct) in service aisles	40
Office space	Fluorescent (semi-direct)	50

Light fixtures for stack areas shall be fluorescent, continuous strip (single tube), not more than 9" wide including the maximum width of the reflector. The fixture shall be of all-metal construction and shall be equipped with thermally protected ballasts. The lowest point on any fixture shall be at least 12" higher than the top of the highest record storage.

In areas where 13' 3" high shelving is to be catwalked, the fixtures should be single tube, 215 watt, 8', fluorescent, continuous-strip lighting to provide adequate illumination at the lower level.

11. The temperature, humidity and ventilation in centers should be controlled according to the following guidelines:

a. Office areas and certain stack modules housing high-activity records (IRS tax returns) should be air-conditioned at 72° to 76° F.

b. The remaining stack areas, housing low or medium-activity records, should be ventilated by a fresh air-forced ventilation system (heavy duty), capable of maintaining at the 6' level above the floor a temperature of 72° ± 10° Fahrenheit under normal conditions.

c. Vault and archives area should be temperature and humidity controlled. The following environmental conditions should be maintained to meet the requirements for storage of special materials:

Temperature: 70° ± 5° Fahrenheit

Relative Humidity: 50% ± 5 Percent

Rapid and wide-range cycling of temperature and humidity within a 24-hour period shall be avoided.

12. The entrance vestibule should be equipped with standard built-in exhibit cases for displaying facsimiles of the Constitution, the Declaration of Independence, Bill of Rights, and other appropriate exhibits.

13. All facilities shall comply with the criteria listed below with respect to firesafety. In addition, the lower story of any two-story facility and all portions of any buildings higher than two stories shall comply with the requirements for Type A fire-resistive construction. The detailed description of Type A fire-resistive construction is contained in Chapter 2-3 of GSA Handbook, Building Firesafety Criteria (PBS P 5920.9).

#### Area

There is no firesafety limit on the total building area. The facility, however, shall be separated by fire walls into individual records storage areas, not exceeding 40,000 square feet each.

#### Fire Walls

All walls separating records storage areas from other portions of the building shall be 4-hour fire-resistive fire walls. In addition to fire resistance, all fire walls shall be structurally sound, capable of standing impact and imposed loads, if severe fire exposure should cause collapse of the framing members on one side of the wall. All openings in fire walls shall be protected by Class "A" fire doors on each side of the fire wall. No ducts shall pass through fire walls that separate two records storage areas. Properly protected duct passes may be established between records storage areas and corridors or office areas. Fire walls should be erected preferably without expansion joints. If expansion joints are essential, they shall be protected to their full height with Number 10 iron astragals lapping the opening on each side of the wall.

#### Columns

Building columns located within the records storage area, shall be 2-hour fire-resistive, from floor to the point where they meet the roof framing system.

#### Roof

Roofs shall be noncombustible. If framing is simple, no fire resistance is required. Any continuous members or other framing systems having a direct effect on more than one structural bay shall be of 2-hour fire resistance. No portion of the roof framing system shall pass across a fire wall.

#### Exits

Exits from all facilities shall comply with the requirements of Chapter 4-3 of GSA Handbook, Building Firesafety Criteria (PBS P 5920.9).

### Air-Handling

The air-handling system shall be designed so that it can be manually converted to total outside air and used for emergency smoke removal. All ducts shall be steel. Ducts may be above or below the roof level, but shall be coordinated with the sprinkler system to maintain full distribution and required clearance from maximum records storage height.

### Heating

Any furnaces or boilers shall be separated from the records storage by a 4-hour fire wall, with no openings directly from the furnace or boiler room to the records storage areas. No open flame (oil or gas) equipment shall be used in any records area.

### Service Aisles

The stack arrangement shall be such that there will be no dead-end aisles. Where stacking runs perpendicular to the wall, it shall terminate at least 18" from the wall (except where rows are less than 15' in length).

### Loading Docks

Loading docks shall be separated from records areas by 4-hour fire walls with proper fire-door protection and by 2-hour fire partitions from any other portions of the building.

### Security Vaults

Security vault walls and roof shall be 4-hour fire-resistive to the extent feasible. (See item 13, above, fire area.) Fire doors shall be as required for other records areas and shall be separate from security doors. Since the vault is to be sprinklered, it should have a floor drain(s), although the floor surface throughout must be level.

### Automatic Sprinkler Protection

All records storage areas, loading docks, corridors, offices, service areas, or other space within the general records storage area, shall be sprinkler protected. The only exception to sprinkler protection within the records area shall be electrical wire closets or transformer vaults in separate fire-resistive enclosures. Sprinklers shall be rated at 286°F. Systems shall be hydraulically designed to deliver a minimum rate of water application of 0.30 gpm per square foot for the most remote 2,500 sq. ft. of floor area. In

addition, the system must have the capability of delivering a minimum of 0.20 gpm per square foot for the most remote 5,000 sq. ft. of floor area and have an initial operating pressure of from 80 to 100 psi at the base of the sprinkler riser. Maximum spacing of sprinkler heads shall be 10' and positioning of heads above floor shall be such as to provide complete unobstructed coverage with at least 18" clearance from highest stacking height (from top of highest stored materials).

#### Water Supply

If the water supply for the records center is of a design whereby both sprinkler protection and fire hydrants are taken from the same source, the water supply system shall be capable of delivering not less than 1600 gpm at 65 psi, 2800 gpm at 30 psi, and 3000 gpm at 20 psi. (see Figure I, attached.) The system shall be capable of delivering the maximum capacity requirement (3000 gpm) for a period of at least 3 hours.

A dependable water supply virtually free of interruption is required. This will frequently, but not universally, require a two source system. A single-feed main from the public water system would not be considered a dependable source. Two feeds from different points in the public system would be considered satisfactory, if dependable facility fire pumps are provided. An on-site reservoir with both electric motor and internal combustion engine driven pumps is another example of a single, but adequately dependable supply. Any two source system with sufficient pressure and capacity in each source is, of course, also satisfactory.

#### Interior Hose Stations

Interior hose stations connected to the sprinkler system and conforming to the requirements of National Fire Protection Association Standard No. 13 shall be provided in such a manner that any point in the stack area can be reached by a 50-foot hose stream from a 100-foot hose lay. Each hose station shall be provided with a rack and reel capable of holding 100 feet of 1 1/2" rubber or latex lined hose. The hose and shut-off type nozzle shall be provided from Federal Supply Schedule after completion of the structure.

#### Fire Hydrants

Fire hydrants shall be located so that each entrance, or other access to the records center that could be used by firefighters, shall be within 250 feet of a fire hydrant. All hydrants shall be at least 50 feet away from the building wall and adjacent to a roadway usable by fire apparatus.

Alarm System

All records storage areas shall be provided with an ion chamber, early-warning type fire-detection system. Detectors shall be located on a maximum spacing of 1,000 square foot coverage per detector, with such additional detectors or arrangement as required by the established airflow pattern. The early-warning detection system shall be entirely separate in its wiring and controls from any other system. Provision shall be made, however, for an appropriate transmitter (or other device) to transmit the signal across the building fire alarm system, indicating detection. Depending on the arrangement and layout of the building, multiple transmitters may be necessary to indicate zoning or location of the alarm source.

It is desirable that the specification for the ion chamber system state that the indicated 1,000 square foot spacing is maximum and that the contractor is responsible for providing a system that will detect a fire ignited in 1 pound of burning shredded paper contained in a 12-inch diameter wire-mesh cylinder placed anywhere in the records storage area within 120 seconds of a simple match ignition. The specification should also require that the detectors shall also operate without more than one false alarm per year for the entire installation, at the sensitivity required to meet the detection requirements. Also, detectors shall not require servicing or cleaning more than once each year and such servicing or cleaning shall be capable of accomplishment in not over 120 seconds by one man not including time to reach the detector. Any dismantling of the detector for cleaning shall not require tools. Detectors shall not be sensitive to humidity change. Acceptance of detectors shall be subject to proof test by the prescribed fire after racks are installed, but before any records are placed in the building.

The building shall be provided with a manual, shunt, noninterfering, coded, general, fire alarm system. Fire alarm striking stations (boxes) shall be located at each of the exists from the stack areas and each of the exists from the building. No other fire alarm boxes shall be located in stack areas. The fire alarm system shall be provided with central-station service or other automatic means of notifying the municipal fire department.

Each sprinkler system shall be provided with an alarm check valve, with a water-motor gong, a retard chamber, and a pressure-type electric actuator for a water-flow alarm to be transmitted over the manual fire alarm system.

All water-control valves on the sprinkler system, or other principal valves on the fire protection system, shall be provided with tamper supervision. Tamper supervision shall be separate from the manual fire alarm system.

#### Electrical Equipment

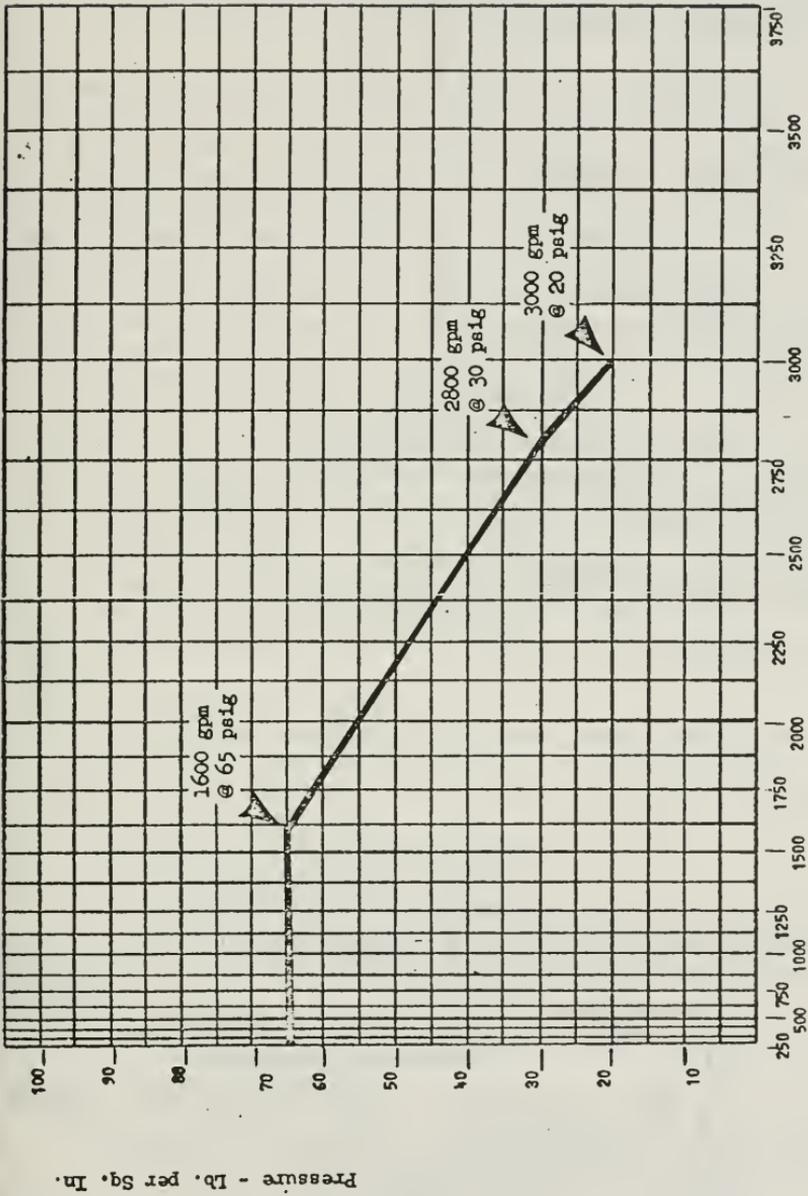
No transformers, regardless of size, except thermally protected devices included in fluorescent light ballasts, shall be permitted within the stack areas. All electric control boxes and light switches shall be located at the main entrance to the stack area.

#### Emergency Vents

Emergency heat and smoke vents shall not be provided. (See air-handling, above.)

#### First Aid Firefighting Equipment

Water-type fire extinguishers (2 1/2 gallon stored-pressure type), shall be provided at each fire alarm striking station.



Flow - Gal. per Min.

Figure 1, WATER SUPPLY REQUIREMENTS

GENERAL SERVICE ADMINISTRATION  
 REGION 3  
 ACCIDENT AND FIRE PREVENTION BRANCH

APPROVED AS NOTED

AS MEETING GSA FIRESAFETY  
 REQUIREMENTS

BY *J.A. H. [Signature]* DATE *11/8/75*

*Note - Approved for fire rated partitions  
 As noted in 300A memo 6/4/75 to 3MR  
 the type construction of this building  
 does not meet GSA criteria.  
 = Fire rated enclosures to continue  
 down through all floors to the street*

*ok with changes indicated on  
 6th floor John D. [Signature]  
 10-31-75 Claude [Signature]  
 70/30/7*

EDMUND W. DREYFUSS & ASSOCIATES, P.C.  
 REGISTERED ARCHITECTS  
 1523 L STREET N.W. WASHINGTON, D. C. 20005 296-7678

LANSBURGH'S DEPT. STORE  
8th & D' STREETS N.W.  
WASHINGTON, D. C.  
RENTAL PLAN for G.S.A.

SCALE: 1/8" = 1'-0"		DRAWN BY <i>[Signature]</i>		PLP NO. <b>7385</b>	DRAWING <b>1.3</b>
DATE 10-9-75		CHECKED BY			
REVISED	SYMBOL	BY	REVISED	SYMBOL	BY

DESIGNED IN ACCORDANCE WITH THE  
 BUILDING REGULATIONS OF

ARCHITECT

CONTRACTOR SHALL VERIFY ALL CONDITIONS AND/OR DIMENSIONS ON THE SITE

Mr. INGRAM. If you knew the building did not meet the fire safety standards, could you tell the subcommittee why you approved it?

Mr. HAWKINS. Could I see the one you are referring to? I do not recall it.

[Clerk hands records to witness. Witness examines them.]

Mr. INGRAM. As you will note on the December 1975, documents you appended, there are a few words there that seem to note—and to refer back to your June 4 memo—that the building still did not, in your opinion, meet fire safety criteria; but you did approve the go-ahead presumably on the use of the building by NARS.

Mr. HAWKINS. All right. This piece of paper is a corner of a drawing where we mark "Approved" or "Approved as noted." As I recollect the situation, we stand by our June 4, 1975, memo saying that it does not basically meet the GSA criteria or the NARS criteria for storage. We were in a position where we were saying, "What can we do to improve the life safety of the building?" Somewhere in here we will find that it says, "To improve the life safety, if you are going to go in, you must do these things: enclose the vertical shafts, and so on."

So, as they brought the plans in to us, we would check to see what they were going to do, and we would approve this as a part of improving the life safety deficiencies of the building.

This is why, on each plan that we approved, we also noted that we stand by our June 4, 1975 memorandum.

Mr. INGRAM. Which listed at least four major deficiencies in the building.

Mr. HAWKINS. That is right.

Mr. INGRAM. Does Lansburgh's currently meet the fire standards today that it did not meet 4 years ago?

Mr. HAWKINS. It does not meet the basic fire safety criteria, as far as construction is concerned.

Mr. INGRAM. So, the same deficiencies exist today?

Mr. HAWKINS. For storage of records.

Mr. INGRAM. So, the same deficiencies exist today that existed 4 years ago—for storage of records—at the point that the approval was either to be given or not to be given for the Archives' occupancy of that building.

Mr. HAWKINS. The very basic structural—but the life safety part of it has been improved, yes.

Mr. INGRAM. Yes. Thank you.

I think your testimony raises further questions, but I do not believe we will have time this morning to go into them. I think we will have to go up the chain of command to find out a little more about why the approval may have been given on this particular building.

Mr. PREYER. Mr. Morr?

Mr. MORR. I have just a couple of things, Mr. Chairman.

You were talking about the steel doors in the vaults, and you indicated they had been proved "several times."

Have there been other fires at the vaults or other tests on the doors, or was that just a phrase?

Mr. GALUARDI. In December 1977, in the earlier building, there was a fire in a particular vault.

Mr. MORR. Also, as a followup to an earlier question, what would it take, in terms of dollars, to bring the vaults into compliance with

the two ad hoc investigating committees' recommendations and the National Fire Protection Association's circular? If you do not have that right now, you could supply it for the record.

Mr. KEILMAN. We will supply it.

Mr. PREYER. Without objection, the material will appear in the record at this point.

[The material follows:]

The cost of bringing the vaults into compliance with the two ad hoc investigating committees' recommendations:

Improve sprinkler systems.....	\$85,500
Upgrade air-conditioning .....	25,000
Provide gas monitoring system.....	50,000
Replace roof, building C.....	10,000
Replace roof, building B.....	10,000
Improve door latches.....	27,000

Total..... 207,500

To bring the film vaults into compliance with national standards would require:

Plaster walls to assure gas tightness.....	\$8,000
Add five wing walls to isolate explosion vents.....	11,000
Replace vault doors with double fire doors (instead of improving door latches) add.....	27,000

Total..... 46,000

Total from above..... 207,500

Grand total..... 253,500

Mr. MORR. Along with that, I would be curious to see a comparison of those costs with what it might cost for a new structure that would be up to standard.

Mr. KEILMAN. We will supply that also.

Mr. PREYER. Without objection, it will be included in the record at this point.

[The material follows:]

The cost of a new nitrate film storage facility embodying national construction standards is estimated at approximately \$480,000.

Mr. PREYER. Thank you, Mr. Morr.

We might have some further questions for the panel which we will send to you.

Without objection, the questions and their responses will be included in the record at this point.

[See app. 10.]

Mr. PREYER. Thank you, gentlemen.

Mr. KEILMAN. Thank you, Mr. Chairman.

[Mr. Keilman's prepared statement follows:]

STATEMENT OF  
DENNIS KEILMAN  
ACTING COMMISSIONER,  
PUBLIC BUILDINGS SERVICE  
GENERAL SERVICES ADMINISTRATION

BEFORE THE  
SUBCOMMITTEE ON GOVERNMENT INFORMATION  
AND INDIVIDUAL RIGHTS  
COMMITTEE ON GOVERNMENT OPERATIONS  
HOUSE OF REPRESENTATIVES

June 21, 1979

Mr. Chairman, I appreciate the opportunity to appear before you today to discuss the efforts which GSA's Public Buildings Service has undertaken to ensure the safeguarding of the records of the National Archives and Records Service. With me today are Russ Maisch, Director of PBS's Accident and Fire Prevention Division, and Tom Goonan, a Fire Safety Engineer in that Division.

The fire at Film Vault A of the Suitland Federal Center on December 7, 1978 was a devastating reminder of the need for improved protection of those records which have been entrusted to the custody and control of the National Archives. Once lost, records such as these which are a living testament of our nation's history can never be recovered. I realize that much remains to be done to institute the necessary firesafety and other improvements at the buildings which house these records. I can only assure you that our efforts in this area will be given a high priority. We will do everything possible to make sure that another tragic fire is not allowed to occur.

#### Background

Three buildings - A, B, and C - were erected in 1945 in Suitland, Maryland, for use as temporary nitrate film storage vaults. At the time of construction, it was estimated that these facilities would be used no longer than three years. The buildings are identical one-story structures of fire resistive construction with 8-inch thick concrete block walls and reinforced concrete slab floors and roofs. Each building contains 27 film vaults. Each vault is equipped with an individual horizontal explosion vent measuring approximately 51 inches by 38 inches. These vents are located on the outer wall at the end of the vaults and are covered with cement asbestos board blowout panels. Electrical installation in each storage vault complies with provisions of the National Electrical Code.

The GSA film storage practice is derived from National Fire Protection Association No. 40, Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film, a national consensus standard. GSA standards deviate from this standard in several important respects. According to the national standard, storage temperature is required to be 70° F. GSA maintains the temperature below 55° F for longer film preservation. NFPA 40 requires two fire doors, a sliding door and a self-closing swinging door. Sliding doors are difficult to maneuver quickly, and are not permitted for doors in GSA buildings in order to facilitate a quick exit in case of fire. Also for safety reasons, a person working inside a vault is required to leave the door open, precluding a self-closing door. The steel doors installed in the buildings are not therefore standard, but they are quite capable of withstanding the maximum fire in a vault, and have been so proved several times. The walls are slightly substandard from NFPA 40 requirements, but have also withstood full intensity vault fire without distress. The sprinklers were designed to meet NFPA 40 requirements.

#### Utilization of Buildings A, B, and C.

Building B is utilized by the Library of Congress for nitrate film storage. In 1961, a sprinkler system was installed in that building to protect the growing volume of nitrate film stored there. At the same time, Buildings A and C were being used by the National Archives and Records Service for film storage. As a result of a continuing conversion

effort, there was actually little nitrate film stored at these locations by NARS during the 1960's. This situation changed drastically in 1970. In that year NARS received a substantial gift of film, the "March of Time" collection of theater releases and outtakes; this collection was received and stored in Building C.

In 1970 MCA-Universal Pictures, Inc. donated to NARS the Universal Newsreel Library for the period 1929-1967; included were 28 million feet of mostly negative nitrate and safety 35mm motion picture film; an extensive card catalog and microfilm copy; and selected production records. The collection was received over a 2-year period. In 1974 MCA-Universal deeded legal custody to NARS, placing it in the public domain. Universal Films also provided for the design and installation of a complete fire protection system for nitrate film storage in Building A -the designated repository. The installation of the sprinkler system in the building was started late in 1973, and completed in 1974. At that time GSA determined that the fire suppression system should be a "high speed deluge system." Nitrate film burns with such intensity that ordinary automatic sprinklers will not extinguish an established fire. A system of open sprinklers, activated by a sensitive heat detector, may catch a nitrate film fire in its initial stages with its heavy water spray. This could prevent nearby film cans from getting hot enough to ignite, even though the film cans already ignited would continue to burn until their contents were consumed. Such a system, known as a deluge system, is used successfully in high hazard areas, such as rocket propellant manufacture. As installed, however, the sprinkler system was actually

a standard automatic sprinkler system. The separate shut-off valves which would have allowed for the setting, testing, and maintenance of a deluge system were not installed.

#### August 1977 Fire in Building C

In August 1977, following a hot weekend, an explosive fire erupted in Vault 13 of Building C, which blew out the explosion vent and burned out the entire contents in about six minutes. When the fire department arrived, the fire in Vault 13 had burned out. The fire department extinguished a few small residual fires away from the building and used hose lines to cool the unignited film in the adjoining vault. The explosion vent had relieved the internal pressure, the masonry walls prevented the fire from extending to the next vault, and the steel door kept the fire out of the corridor. At the time of the fire the building was locked and all vault doors were closed. There was at that time no automatic extinguishing system. Approximately 900 cans of "March of Time" film and 109 cans of aerial photographs were destroyed. Besides the loss of irreplaceable film and some aerial photographs, damage to the building and equipment was negligible. The probable cause of the fire was determined to have been the rapid decomposition and spontaneous ignition of badly deteriorated film. The existing situation had also been aggravated by the fact that the two end vaults, numbers 13 and 14, had been experiencing higher than normal temperatures due to the malfunctioning of the air conditioning system.

After the fire immediate steps were taken for improved fire protection of the buildings. Strict controls were instituted to ensure that film vault temperatures were maintained at 55° so as to prolong the life of the film and, more importantly, to avoid the extra fire hazard inherent in deteriorating film. Everyone entering Buildings A and C - employees, maintenance men, or visitors - was required to sign a daily log. The examination and copying of all nitrate film was continued. However, film already copied or found not worthy of retention was immediately discarded. All film was visually inspected every six months, and any film showing signs of deterioration was removed for immediate copying or discarded. At the 1977 level of copying, it was estimated that the conversion program would last for 30 years.

GSA also undertook significant improvements in the air conditioning and sprinkler systems of the three buildings. Two construction contracts were issued. The first provided for the installation of automatic sprinklers in Building C, the replacement of the sprinklers in Building B, and the installation of water flow alarms and valve supervision in Building A. The design for the sprinklers in Buildings B and C was copied from the installation in Building A. It was not recognized at that time that the lack of separate shut-off valves in each vault prevented the operation of the desired deluge system, and this deficiency was carried over into the other contract. The second contract provided for the installation of new air conditioning and air handling systems, increased insulation, and humidification controls in Buildings A and C.

These new systems were justified on the assumption that the buildings would be required for nitrate film storage for the 30 years then estimated to complete conversion to safety film.

#### The December 1978 Fire in Building A

Work on the air conditioning contract for Buildings A was initiated in the summer of 1978. It continued intermittently until September, when the contractor stopped all operations. It had become apparent that the new cooling unit provided by the contractor would be much larger than the one it replaced, and that it could not be hung over the vault doorway in place of the old one. The contractor secured a change order to the contract to place the new unit at the opposite end of the vault and remove two sprinkler heads from each vault to make room for the new unit. He was then to replace the two heads below the new unit. At the same time, the entire sprinkler system was lowered several inches to make room for the ceiling insulation. Instead of removing and replacing the two sprinklers concurrent with hanging the new cooling unit, two sprinkler heads were removed from all the vaults in Building A. The six sprinklers in each vault were reduced to four, a one-third reduction. Prior to the day of the fire, the air conditioning contractor had performed all hazardous operations, including gas flame cutting and welding, power sawing and power pipe threading outside the building. The dismantling of the cooling system and the removal, relocation and installation of sprinkler piping and valves were all performed with wrenches.

On the day of the fire, December 7, 1978, two employees of the air conditioning contractor, Edward Kocherian, Inc., arrived at the Suitland Records Center at 7 a.m., without advance notice, after an absence of about two months. They brought with them an open-armature electric drill, ceiling bolts, and inserts. At that time all vaults were fully utilized for film storage, and all but one vault contained nitrate film. The contract employees began at the north end of Building A; they drilled four holes in the ceiling of each vault and inserted four ceiling bolts in preparation for hanging the new air conditioning unit. After doing several vaults they ran out of bolts, but continued to drill holes. The film vault supervisor arrived at Building A about 10 a.m., complained about the dust being generated, and observed a number of vault doors open at the north end of the corridor. At about 11:30 a.m., work stopped and the two contract workers joined <sup>the</sup> NARS employees in the office at the south end of the building to eat lunch. Ten vaults had been worked on. Shortly after noon, smoke was discovered in the corridor of Building A by the employees having lunch. The fire department was called, and employees and the contractor's men left the building immediately.

The fire department, upon arrival, found the fire still burning, the building full of smoke, and sprinklers operating within. Four firefighters entered the building at the entrance on the south end. Two of them manned a hose line and the other two opened vault doors in search of the fire. A second group was outside at the northeast side of the building breaking out explosion vents. A sudden change in the character of the smoke prompted the fire chief to immediately order his

men out of the building. While the men were still inside, but retreating, a backdraft explosion occurred which blew out an explosion vent, displaced a wall across the inside corridor, and injured firefighters inside, two seriously. The fire department retreated to a safe distance and applied water from the outside. The fire progressed from vault to vault, with frequent minor explosions, as additional vaults became involved. Twenty-three of the 27 vaults burned. Approximately 12.6 million feet of film were destroyed.

Inspection of Building A the day after the fire revealed that, due to the fact that the automatic sprinkler protection for the vaults had been altered, the level of protection had been reduced, thereby compromising the ability of the system to extinguish a fire effectively. Moreover, the waterflow alarm, installed in early 1978, was improperly connected and did not work.

#### Investigation of the Fire

On December 21, 1978, Walter Kallaur, Regional Administrator, appointed an Ad Hoc Committee to investigate the circumstances surrounding the fire. This committee was chaired by Mr. William Hart, and included representatives of the Public Buildings Service and NARS. The report of the Ad Hoc Committee stated that the "cause of the fire has not been determined", but that it was "probably linked to construction activities associated with upgrading the air conditioning system". Specifically, the report implied that the fire might have been ignited by an open armature drill being used by the workmen. Another explanation has been advanced by the Prince George County Fire Department.

We are not convinced that the cause of the fire will ever be determined with complete certainty. My most immediate concern today, however, is to ensure that steps are taken to reduce the likelihood of another such occurrence. Mr. Rhoads has already detailed the numerous steps the National Archives staff are taking to accelerate conversion of the nitrate film. This accelerated program will in turn allow us to revise and expedite our repairs and alterations to the buildings. First, we are now working with National Archives staff to evaluate the possibility of converting Building A into a film laboratory. This would allow them to remove all nitrate film processing activities from the National Archives buildings. Immediate improvements will be made in each building where appropriate. The first of these will be the introduction of standby compressors to augment the existing cooling systems in Buildings A and C. The contract to replace the cooling systems in these buildings is being cancelled; the new cooling systems will not be required, as all nitrate film is expected to be removed from the buildings in two to five years. Also, individual control valves are being provided for the existing vault sprinklers so they may provide high-speed operation. Other improvements recommended by the Ad Hoc Committee investigating the fire are being re-evaluated. These include: installation of an emergency generator, an automatic vault temperature monitoring system, and a gas detector system to monitor nitrate film decomposition products. The exact nature of the improvements made will depend on the expected future use of Buildings A and C, and the intentions of the Library of Congress with regard to the continued storage of nitrate film in Building B.

Mr. Chairman, this concludes my prepared statement. I will be happy to answer any questions you may have.

Mr. PREYER. The subcommittee will now stand in recess until 2:15 this afternoon.

[Whereupon, at 12:50 a.m., the subcommittee recessed, to reconvene at 2:15 the same day.]

AFTERNOON SESSION

Mr. PREYER. The subcommittee will come to order.

I am sorry about the delay. We had two Panama Canal votes together there.

Our next witness is Mr. John G. Degenkolb, a fire safety engineer who has been a consultant to motion picture studios on the subject of storing film. Mr. Degenkolb has agreed to testify as an outside expert for the subcommittee.

Mr. Degenkolb, would you be sworn, please?

Do you solemnly swear that the testimony you will give this subcommittee will be the truth, the whole truth, and nothing but the truth, so help you, God?

Mr. DEGENKOLB. I do.

Mr. PREYER. Thank you.

**STATEMENT OF JOHN G. DEGENKOLB, FIRE SAFETY ENGINEER,  
LOS ANGELES, CALIF.**

Mr. DEGENKOLB. Mr. Chairman, I would like to comment on various points that were shown in the GSA report.

First, site inspections such as were made in the period of October 23 to 27 are, in my opinion, totally inadequate. They were doing over 5 million feet per day. The condition of a roll of film cannot be determined without the use of a hand rewind. When the can of film is removed from its slot in the storage rack and the lid is removed, a glance on the surface of the film will not let the observer know what is occurring at the middle of the film where it is tightly wound on the spool.

The correct inspection method is to use a rewind and check every foot of the film.

Second, while one report referred to the construction of the vault as being of cinder block, it seems to have actually been of 8-inch thick concrete block. If there were cracks or holes in the blocks, the inside of the outside walls should have been plastered.

Third, it is apparent that storage racks extended to the ceiling. There should have been an absolute minimum of 12 inches between the top of the storage and the sprinkler heads. The lowering of the sprinkler lines will leave additional shelving unprotected.

Further, the storage of films in the aisle to a height of 3 or 4 feet renders the sprinkler system more ineffective.

Fourth, the metal shelving does not meet the requirements because it is not insulating in nature.

The use of asbestos boards blowout panels requires 35 pounds pressure to vent and is in violation of venting requirements of the National Fire Protection Association's standards. So, the explosion vents could certainly not serve as decomposition vents. As a result, the decomposition products had nowhere to go, except to remain in the vault.

A single strength glass not exceeding one-sixteenth of an inch in thickness and not caulked would have allowed decomposition gases to

escape. If decomposition gases cannot escape, they will do further damage to the film, and we have a domino effect.

Sixth, obviously, the removal of two sprinkler heads is a flagrant violation of safety requirements.

Seventh, the procedure of leaving vault doors open, in addition to the door to the examining room, is most unsound, particularly so since the doors were not fire doors, were neither self-closing, nor automatic closing, and were without automatic operating latches.

Eighth, under no circumstances should contractor's men be permitted to work in a vault until all the nitrate film has been removed. Cord wiring, exposed 200-watt globes, the electric drill work, is completely unjustified when nitrate film is present.

Ninth, the failure of the waterflow alarm is indicative of poor inspection and maintenance practices.

Tenth, while the standard is silent on humidity control, there is sufficient information available to recognize that it is an important factor in nitrate film preservation. Some humidity controls should have been provided.

Eleventh, the failure to provide a means of transmitting an alarm is evidence of noncompliance with standard safety practices but is not overly significant. There should be an alarm box near the vault.

Twelfth, if the construction of the vaults was standard or code conforming, the doors, self, or automatic closing and latching, and the vents properly installed, the fire should not have spread beyond the vault in which the fire originated, as was the case in the 1977 fire.

Thirteenth, the fire suppression activity left something to be desired. First was the failure of firemen to wear self-contained breathing apparatus. Since I wrote this, I have talked to the fire department and assured this morning that all firemen who entered the vault did wear breathing apparatus. But then to open a number of vaults, and leave the doors open, or certainly unlatched, when no fire was found, encouraged fire spread.

The breaking out of the vents may well have contributed to the spread of the fire since the vents were not properly designed.

Fourteenth, the recommendations of the ad hoc committee are in order in my opinion, except for the prohibition of cardboard boxes and the punching of a hole in the tin cans.

The cardboard boxes or fibreboard boxes have been approved by the Department of Transportation for this purpose and are fully acceptable.

Fifteenth, film should be hand inspected and any showing bubbles or further decomposition should be destroyed or very carefully printed onto safety film.

As for the fire chief's report, the deluge system is not the only way to go. A spray application from a fusible link-type sprinkler head would probably do a better job of cooling the film storage containers, would get between the shelves of the storage racks, and better cool everything in the vaults.

Incidentally, a lot of people believe that a sprinkler head will operate promptly when the air temperature reaches 165° F, but that is not necessarily so. The UL—the Underwriter Laboratories—standard 199 on sprinkler heads permits a 165° F head not to operate until the air temperatures reaches 290° F, and then it must actuate within 6½ minutes.

Where the minority report with the GSA committee is concerned, as I read NFPA 40, quick-acting sprinklers are not required. Smoke detectors would be of no significant benefit and possibly could be actuated too frequently and thus lead people to disbelieve the fire alarm.

In other respects, the minority report touches on significant items with which I have no disagreement, such as the humidity controls, the unshielded light bulbs, and so forth.

The National Fire Protection Standard No. 40 is the standard for the storage and handling of cellulose nitrate motion picture film. The standard requires, first, that archival vaults should not exceed 1,000 cubic feet. The vaults met this requirement.

Second, when 8-inch-thick hollow masonry units are used, the face should be plastered on both sides with a cement plaster at least a half-inch thick if there are cracks or holes in the surface of the blocks. There has been no statement regarding the condition of the vault walls at Suitland.

Third, the proximity of vent stacks to each other and to other sources of heat should be avoided. This was not the situation at Suitland.

The radiated heat from a fire in one vault could affect adjacent vaults.

Fourth, doors should be of a type suitable for use in Class B situations. That is, a 1- or 1½-hour situation. Two doors are required.

I happen to be chairman of the National Fire Protection Association Committee on Fire Doors and Windows, and I should explain that a class B 1-hour door is one that has been subjected to a severe fire reaching 1,700° at the end of an hour. No through openings are supposed to develop, and the doors, then, are also supposed to withstand the onslaught of a 2½-inch firehouse stream tending to batter away at the door.

The standard would have called for two such doors, one on the inside, and one on the outside. A combination of two 1-hour doors is equivalent to something like 3 hours and 25 minutes. In place of that, we had a three-eighths-inch steel plate, difficult to open and that had to be latched manually.

It also requires, in the standard, that the interior door be a sliding door arranged for automatic operation. There was no such door. The outer door should be self-closing or be arranged to be automatic closing and, of course, be automatic latching. The vault doors did not comply in any respect.

I believe that insulated or low-heat transmitting doors should be used, but they are not specifically required in the standard.

Fifth, the decomposition vent is required except when explosion vents are provided. There were no decomposition vents. The explosion vents were so tightly sealed with asbestos board blowout panels that no venting could occur to dissipate the decomposition gases.

Sixth, the outlets of explosion vents are to be above the roof to dissipate the heat and gas.

Where vents discharge horizontally, a deflector wall or other device should be provided to deflect the gases upward. This situation did not exist at Suitland, as you can tell by the pictures.

The idea is that when these extreme flames come out, they are not supposed to give radiated heat into the adjoining vault.

In California, we have a lot of multiple vaults. The vents all discharge vertically. We have not had a film fire go beyond one vault

into another. Part of the reason is that the vents, as arranged there, would not allow the spread of fire from one vent to the other.

Each vent should be protected against the weather by a single-thickness glass, one-sixteenth of an inch thick at a maximum, or by insulated or hollow metal hinged vents—vents that will open automatically in case of fire. Vents are to open by both temperature and an internal pressure of 5 pounds per square foot. The vaults in A building did not comply with these requirements.

The racks in vaults should be so arranged that not more than two containers holding 1,000-foot rolls may be on each shelf. Not more than two such containers can be in one shelf compartment. This spacing allows air to flow around the individual containers and the sprinkler water to circulate around and further cool down the containers. The height of the compartment should be so arranged that the lid may lift approximately a half-inch but that it cannot be lifted off entirely.

In addition to this, as mentioned previously, film was stacked in the aisles 3 to 4 feet high.

Nine, shelves and baffles—that is to say, the vertical dividers between the shelves—should be of noncombustible insulating material not less than three-eighths of an inch thick or 1-inch-thick hardwood. These were metal shelves that were not insulated.

Ten, sprinklers may be of the standard wetpipe system or a deluge system. Heads are to be at the rate of one for each 120 cubic feet of vault volume. Vaults of 1,000-cubic-foot volume shall have a minimum of eight heads. With the approval of the authority having jurisdiction, deluge or sprinkler arrangements providing adequate coverage with a lower ratio of sprinklers per cubic foot may be used.

In these vaults, there were six heads to protect the roughly 700 cubic feet, so they were in a proper ratio for what the standard would have required, but the problem was that two heads had been removed.

When a standard system is provided—and this was apparently supposed to be a standard sprinkler system—individual heads should be baffled from each other so that the first sprinkler head that goes off will not put water on the other sprinklers and thereby prevent them from reacting.

Eleven, all film in vaults must be in containers. Cardboard boxes meeting DOT specifications may be used in addition to metal cans. In any case, the cover of the container used should not be lifted off when the container is properly placed in the rack. The reason for that is that they actually have to take the can or the box out completely and not just peek into it, making a half-inspection.

I feel that the primary reason the film got into a poor condition was that visual inspection cannot be made by lifting the lid off and looking at some tightly-wound film of 1,000 or 2,000 feet. You have to get this on to a rewind, let it run through your hand with a cotton glove, and determine what the condition of the film is. This was not done, so I think there is reason to believe that the film was in various beginning stages of decomposition, even though it had been inspected in October.

That is all my comments, unless you have some questions.

Mr. PREYER. Thank you, Mr. Degenkolb.

Without objection, your prepared statement will be included in the record.

[See p. 153.]

Mr. PREYER. That is quite a wholesale indictment of fire safety standards there. I assume from it that you do not feel the GSA investigating committee did a thorough, adequate job on this investigation.

Mr. DEGENKOLB. It bothers me that they completely overlooked the matter of the vents. The vents are a key issue in a nitrate film vault.

I think that possibly there is a little confusion on semantics about a deluge system. To me, a deluge system is such as would be placed in an aircraft hangar so that, when a rate of rise detector goes off, massive quantities of water are dumped over a sizable area.

I am told that GSA's interpretation of a deluge system is one in which all of the heads in the vault would have gone off in a spray pattern. If that is so, if that is the intent of a deluge system, I have no disagreement.

From the film vault fires that I have been involved in previously—three of them—the standard sprinkler system with the baffles between the heads has worked acceptably. So, I cannot criticize the GSA report if their intent of the spray application and the meaning of the deluge system is obviously different from my interpretation of that term.

Mr. PREYER. Do you have any other suggestions as to how GSA could improve its fire investigative procedures? You mentioned the baffles.

Mr. DEGENKOLB. I think that if they followed the NFPA 40 requirements, without getting mixed up on semantics, to get the proper venting of the vault so that the decomposition gases could be dissipated and not stay within the vault, we would have a safe situation.

I do not think it is necessary to relocate these vaults to some other location. In Los Angeles we have film vaults on Santa Monica Boulevard and Melrose—busy streets, commercial areas—and we have had no ill effects from them. Some of our vaults are not even air-conditioned, but they are not archival vaults; they are standard storage vaults where film comes in and out every day.

I do not think it is necessary to relocate the vaults to some other location.

Mr. PREYER. Do you agree with Chief Estep that the fire was caused by self-ignition, by the increasing heat from degenerating nitrate film within the cans?

Mr. DEGENKOLB. I think it was self-ignition—auto-ignition. I do not think it was accomplished by the workmen.

Mr. PREYER. You mentioned that you disagree with punching holes in the film cans in order to allow gases to escape. If you did not punch holes in the cans—and I am a rank amateur asking you this question—it would seem to me that that would allow gases to build up and create a higher risk of self-ignition. Is that not the case?

Mr. DEGENKOLB. No. The containers are not airtight. The fiberboard ones particularly are quite loose. The conventional tin can, while it seems to fit tightly, does allow the gases of combustion to escape—or the offgases from the decomposing film.

If we now punch a quarter-inch hole, as was suggested, in each of these containers, that will provide a much easier way for decomposition gases to get into the other cans, therefore speeding up the decomposition.

Decomposition gases are capable of escaping from a conventional film can. They are not that tight-fitting. So, they will not build up any pressure in there to start to blow the tops off, or anything of that nature. But if we punch a hole in them, now those gases may come out and, in falling, because they would be heavier than air, would then enter these holes in the other cans, and speed up further decomposition.

Mr. PREYER. So, it is a case of a rotten apple poisoning the rest of the apples in the barrel.

Would it be fair to say that there is some disagreement among experts on that point?

Mr. DEGENKOLB. Yes, sir.

Mr. PREYER. You mentioned the Hollywood film vaults. Were those safety films, or were any nitrate films in the vaults?

Mr. DEGENKOLB. No, sir. We do not permit nitrate and safety film to be mixed. We have millions of feet. Technicolor has something over 30 vaults in one location, all filled with nitrate. Each of the studios has nitrate film.

There is supposed to be an unwritten law that any time nitrate film comes out of a vault it will not go back in—it will be printed onto safety film.

When I brought this up at a safety committee meeting last year, I found that it is not being done universally, but that was a policy that was supposed to be followed.

Mr. PREYER. So, those are nitrate films located in populated areas?

Mr. DEGENKOLB. Yes, sir.

Mr. PREYER. Thank you.

Mr. Butler?

Mr. BUTLER. Thank you, Mr. Chairman.

I do appreciate the witness' testimony.

What is the safety committee to which you just referred?

Mr. DEGENKOLB. That is the Motion Picture and Television Producers Safety Committee representative of the entire motion picture industry.

Mr. BUTLER. And it is your effort to get the best judgment as to appropriate safety procedures, and this is a compilation of your information and the industry-wide safety program?

Mr. DEGENKOLB. Yes, sir.

Mr. BUTLER. Are the Library of Congress and the National Archives a part of that?

Mr. DEGENKOLB. No, they are not.

Mr. BUTLER. Do you try to keep them posted on your judgments, or do you have any liaison with them at all?

Mr. DEGENKOLB. I left the Motion Picture Association last year. But up until that time, I might get a call from somebody in Washington on the average of once or twice a year, asking a question about film handling or something to do with the motion picture industry.

Mr. BUTLER. But on a regular basis—there is no regular dissemination of your information?

Mr. DEGENKOLB. No, sir.

Mr. BUTLER. Turning to your statement on the Safety Committee, you said it was the practice, whenever you remove nitrate film, to immediately transfer it to safety film.

What do you do with the nitrate film?

Mr. DEGENKOLB. The same as the GSA provisions. Nitrate film that was to be discarded was put into an ICC 5 drum, filled or partially filled with water in which the film would be submerged, and, as we can no longer burn the film because of air pollution requirements—we used to take it out into the desert and do that—they now put it in these drums, haul it out to sea beyond the 12-mile limit, and dump it.

Mr. BUTLER. Well, I do not know what environmental group that is going to disturb. [Laughter.]

It is disturbing. I think you have covered them all when you put them outside of the 12-mile limit.

Mr. DEGENKOLB. I think so.

Mr. BUTLER. You say you never mix the two films in the same vault. Why is that?

Mr. DEGENKOLB. Because the gases of decomposition from the nitrate film are not compatible. If you splice nitrate film into safety film, you have problems. The nitrate decomposition gases will affect the safety film. We do not even put safety film and nitrate film into the same disposal cans. We just do not want to mix nitrate with safety. They are not compatible.

Mr. BUTLER. The danger is explosion, or what?

Mr. DEGENKOLB. No. Originally, it is a deteriorating effect that the nitrate will have on the safety film.

Mr. BUTLER. From what you heard today and otherwise, what do you think is the likelihood of a fire at the film vaults today?

Mr. DEGENKOLB. Unless they improve the sprinkler protection and the venting—explosion vents—they will have another.

It is particularly bothersome now that, in lowering the sprinkler system to get more air-conditioning in, they are going to have a sizable amount of that vault completely unprotected, unless they significantly reduce the storage in the film vault to a good 12 to 18 inches below the sprinkler heads.

The sprinklers do not put out the fire in the case of film. When we were doing testing with Technicolor several years ago, I saw a 1,000-foot roll of film that had been ignited tossed into a tank of water and continued to burn underwater. You can see it sitting there, fully flaming, just as it had when exposed in the air, because it contains its own oxygen— $\text{NO}_3$ .

So, what we are trying to do in a vault is put water to cool down the exposed part beyond the fire so that it does not get up to the ignition temperature, which will be somewhere around 300 degrees, possibly less.

In a New York film fire, as I think you have been told previously, they determined that the film autoignited at 106 degrees F.

So, the principal idea of sprinkler protection is, not to extinguish the fire—that film that is once started is gone—but we want to cool down the other cans that are in the rack. That is why the racks are supposed to be insulated, with only two cans per rack, so that air can circulate and you can get the water in to have the cooling effects, so that the film fire will not spread.

Did I explain it properly?

Mr. BUTLER. Oh, yes. I am probably not bright enough to absorb it, but I hope the Archives can.

I would ask you one more question—if I may, Mr. Chairman?

Mr. PREYER. Certainly.

Mr. BUTLER. You rattled off a list from a standard procedure, and I did not catch the name.

Mr. DEGENKOLB. The National Fire Protection Association Standard No. 40—standard for nitrate film.

[See app. 7 for relevant excerpt.]

Mr. BUTLER. And it is certainly reasonable to assume that that information was available from 1970?

Mr. DEGENKOLB. The standard is quite old. The date that is on it now is 1974, but as far back as 20 years ago I had suggested to the National Fire Protection Association that that standard should be updated. They were not convinced that it should be because they felt that, since no nitrate film had been manufactured since 1951, we did not need to update the standard.

So, the standard is quite old. It has not been updated—I am guessing—for at least 20 years. So, these requirements were known back in the early 1950's, and there was a standard long before that. I think the first standard on nitrate film was dated somewhere around 1918 or 1919.

Mr. BUTLER. So, the standard has not been updated, but it has not been discredited either, has it?

Mr. DEGENKOLB. No, sir. It has not been discredited.

Mr. BUTLER. So, this is information that should have been generally available.

Mr. DEGENKOLB. Yes.

Mr. BUTLER. Well, I thank you very much for your testimony. I appreciate your interest.

I guess, Mr. Chairman, the thing that concerns me is that the film industry, which certainly ought to know more than anyone else about it, is continuously reviewing its preservation and storage techniques; but there does not seem to be any continuing exchange of the benefits of this research with Federal agencies.

I hope that one thing that might come out of this hearing would at least be the development of a continuing information exchange program.

Mr. PREYER. I think that is a good point.

Thank you very much for your testimony.

I believe we have, for the record, an outline of your credentials which I understand are very impressive. The nature of your testimony convinces me of that, even without running through the credentials.

We appreciate very much your being with us today.

Mr. DEGENKOLB. Thank you, Mr. Chairman.

[Mr. Degenkolb's prepared statement follows:]



*John G. Degenkolb*

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June 12, 1979

STATEMENT OF JOHN G. DEGENKOLB

My name is John G. Degenkolb. I am a professional Fire Protection Engineer registered in California. I am retired from the Los Angeles Fire Department where I was a Battalion Chief in charge of the Public Safety Section of the Fire Prevention Bureau. In that position I was responsible for places of assemblage, theaters, schools, institutional occupancies such as hospitals and nursing homes and was also responsible for motion picture studios, laboratories and film exchanges. After my retirement in 1962 I began work as an independent consultant. In 1964 I became Safety Director for the Association of Motion Picture and Television Producers and was responsible for all aspects of safety in the motion picture industry. I left the industry a year ago.

Much of what I can tell you about nitrate film can be found in your ad hoc Committee report which I have reviewed. Some of what I say may be repetitious but I am trying to lead into a discussion which will conclude with my observations concerning various details covered in the report of the General Service Administration's ad hoc Committee which investigated the December 7, 1978 film fire at Film Vault A, Suitland, MD. I will also comment upon the minority report and the report made by Chief Estep.

To begin with, the manufacture of nitrate film was discontinued in the United States about 1951. So even the newest nitrate film is at least 28 years old.

Nitrate film burns 20 to 30 times as fast as wood although it has approximately the same amount of BTU's per pound, i.e. 6-8,000. While 2500 pounds of nitrate film have burned in 156 seconds, it must be remembered that that was exposed nitrate film outside storage containers stacked up into one big pile. That is not the way nitrate film is found in vaults - or should not be found.

When burned without sufficient air, as in a film can, toxic gases are given off. Other gases given off are highly explosive and have caused secondary explosions.

As nitrate film decomposes it starts burning at lower and lower temperatures. Investigation of a fire in New York City in 1949 indicated that decomposing nitrate film could spontaneously ignite at temperature as low as 106°F.

Nitrate film is chemically unstable and is continually decomposing, even at room temperatures. The gases of decomposition attack other parts of the same reel of film. Nitrate film should be stored in loose fitting cans in properly ventilated vaults. This would allow the gases to escape before they can damage other film. According to Karr "the end of nitrate film is inevitable; it will eventually either completely decompose or else perhaps spontaneously ignite".

Nitrate film deteriorates in stages. The first begins with the fading of the image and discoloration of the film. The second stage is when the film becomes sticky with one layer of film clinging to the next. In the third stage bubbles appear and a bad odor is

emitted - particularly near the center of the reel where film is tightly wound. In the fourth stage the bubbles spread and a brownish colored foam covers the reel. In the final stage the film breaks down into a brown semi-crystalline material. At this stage I am under the impression that it is shock sensitive but that has not been verified. The American Film Institute has nitrate film over 75 years old in better condition than some manufactured in 1950. The decomposition of film may be attributable to the original quality and purity of the film. That manufactured during the World War II days is likely to be of poorer quality.

If nitrate film is spliced into safety film, the decomposing of the nitrate can adversely effect the safety film.

Eastman Kodak says in their bulletin "Precautions in Storing Motion Picture Film" - for ordinary storage, not valuable archives, and dated April 1951:

- 1) The film should be in metal containers, closed but not sealed, and preferably one roll to a can.
- 2) The storage space should be cool and dry. The temperature should not exceed 70°F, preferably lower.
- 3) The relative humidity should be over 25% but not over 60%.
- 4) Nitrate film should be examined on a rewind at least once a year.
- 5) Film in the early stages of decomposition, as indicated by local image fading or discoloration, should be copied on safety film and then scrapped.
- 6) Film in an advanced stage of decomposition, as indicated by a strong odor of nitrous fumes, loss of the image, brown discoloration, undue brittleness, crumbling or powdering, emulsion stickiness, etc. is useless and dangerous.

A special note says that more elaborate precautions are required for the storage or long term preservation of especially valuable films.

According to the Fire Protection Handbook of the NFPA, "Nitrate film is not a true "archival" material because it decomposes." In Canada archival film has been copied on safety base.

NFPA 40 is the Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film. While it carries the date of 1974, it has not been revised for many years.

The Standard requires:

- 1) Archival vaults shall not exceed 1000 cubic feet.
- 2) That when 8 inch hollow masonry units are used, the surface shall be plastered on both sides with a cement plaster at least  $\frac{1}{2}$  inch thick IF there are cracks or holes in the blocks.
- 3) Proximity to stacks and other sources of heat shall be avoided.
- 4) Doors shall be of the type suitable for use in Class B (1 or  $1\frac{1}{2}$  hour) situations. An interior door shall be a sliding fire door arranged for automatic operation. The outer door shall be self-closing or be arranged to be automatic closing and, of course, be automatic latching.
- 5) A decomposition vent is required except when explosion vents are provided.
- 6) The outlets of explosion vents are to be above the roof. Where vents discharge horizontally, a deflector wall or other device shall be provided to deflect gases upward. Where there is the possibility of fire being transmitted from one vault to another, adequate provision shall be made to prevent this possibility.
- 7) Each vent shall be protected against the weather by

single thickness glass (1/16 inch thick) or by insulated or hollow metal hinged vents. Vents are to open automatically in case of fire. Vents are to open by both temperature and by an internal pressure of 5 pounds per square foot.

8) Racks in vaults shall be so arranged that not more than two containers containing a 1000 foot roll may be on each shelf. Not more than 2 such containers can be in one shelf compartment. The height of the compartment is to be so arranged that the lid may lift approximately  $\frac{1}{2}$  inch but cannot be lifted off entirely.

9) Shelves and baffles are to be of noncombustible insulating material not less than  $\frac{3}{8}$  inch thick or 1 inch thick hardwood.

10) Sprinklers may be the standard wet pipe system or a deluge system. Heads are to be at the rate of 1 for each 120 cu. ft. of vault volume. Vaults of 1,000 cu. ft. volume shall have a minimum of 8 heads. With the approval of the authority having jurisdiction, deluge or sprinkler arrangements providing adequate coverage with a lower ratio of sprinklers per cubic foot may be used. When properly arranged, spray sprinklers or spray type fixed nozzles should provide better protection than the use of standard sprinklers uniformly arranged at the ceiling. When a standard system is provided, individual heads should be baffled from each other.

11) All film in vaults shall be in containers. Cardboard boxes meeting DOT specifications may be used in addition to metal cans. In any case, the cover of the container used shall not left off when the container is properly placed in the rack.

Now I would like to comment on various statements made in the ad hoc committee report:

1. Sight inspections, such as were made in the period Oct. 23-27 are totally inadequate. The condition of the film cannot be determined without the use of a hand rewind.

2. While one report referred to the construction of the vault as being of cinder block, it seems to have actually been of 8 inch thick concrete blocks. If there were cracks or holes in the blocks, the inside and the outside walls should have been plastered.

3. It is apparent that storage racks extended to the ceiling. There should have been an absolute minimum of 12 inches between the top of the storage and the sprinkler heads. The lowering of the sprinkler lines will further leave shelves unprotected. The storage of films in the aisle to a height of 3-4 feet further renders the sprinkler system ineffective.

4. The metal shelving does not meet requirements because it is not insulating in nature. Whether the size of individual compartments meets the requirements of the Standard is unknown to me.

5. The use of asbestos board which requires 35 psi to vent is an extreme violation of venting requirements. So, the explosion vents could certainly not serve as decomposition vents. As a result, the decomposition products had no where to go.

6. Due to insufficient information concerning the sprinkler installation, no specific comments can be made. Obviously the removal of 2 heads is a flagrant violation of safety requirements.

7. The procedure of leaving vault doors open in addition to the door to the examining room is most unsound - particularly so since the doors were not fire doors, were not self-closing nor automatic closing and were not automatic latching. Personally I could accept the use of a single 3 hour fire door with a low heat transmission figure since I believe a sliding door is not acceptable for

escape from a hazardous occupancy.

8. Under no circumstances should contractors' men be permitted to work in the vault until all nitrate film had been removed. Cord wiring, exposed 200 watt globes, electrical drill work is completely unjustified when nitrate film is present.

9. The failure of the waterflow alarm is indicative of poor inspection and maintenance practices.

10. While the Standard is silent on humidity controls, there is sufficient information available to recognize that it is an important factor in nitrate film preservation. Some humidity controls should have been provided.

11. The failure to provide a means of transmitting an alarm is evidence of noncompliance with standard safety practices but is not overly significant.

12. If the construction of the vaults was Standard or Code conforming, the doors self or automatic closing and latching, and vents properly installed, the fire should not have spread beyond the vault in which the fire originated.

13. Fire suppression activity leaves something to be desired. First was the failure of firemen to wear self-contained breathing apparatus. Then to open a number of vaults and leave doors open when no fire was found encouraged fire spread. Breaking out of vents which were improperly constructed may well have contributed to the spread of the fire.

14. The recommendations of the ad hoc committee are in order, in my opinion, except for the prohibition of cardboard boxes and the punching of a hole in the tin cans.

15. Film should be hand inspected and any showing bubbles or further decomposition should be destroyed or very carefully printed on safety film

As for the Fire Chiefs report, the deluge system is not the only way to go. Contrary to the statement about a sprinkler head operating at 165°F, UL 199 would not require that a sprinkler head in air go into operation until 290°F after 6½ minutes. Too many people believe that a sprinkler head will operate promptly when air temperature reaches 165°F.

Where the Minority Report is concerned, as I read NFPA 40, quick acting sprinklers are not required. Smoke detectors would be of no significant benefit and, possibly, could be actuated too frequently and thus lead people to disbelieve a fire alarm. In other respects the minority report touches on numerous significant items with which I have no disagreement.

Mr. PREYER. Our next witness is Mr. Daniel Luczak, an engineer and fire investigator. Mr. Luczak was commissioned to do a study for the insurance company that covered the air-conditioning contractor who was working in building A when the fire broke out. He appears under subpoena.

I will ask you if you will be sworn, Mr. Luczak.

Do you solemnly swear that the evidence you shall give to this subcommittee shall be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. LUCZAK. I do.

Mr. PREYER. Thank you.

Did I pronounce your name properly?

Mr. LUCZAK. After a couple of years in the military, Mr. Chairman. I nod in any direction, but that was a very good pronunciation.

Mr. PREYER. Feel free to summarize your statement, or proceed in any way you wish.

**STATEMENT OF DANIEL W. LUCZAK, SENIOR INVESTIGATIVE ENGINEER, CADCOM DIVISION, MANTECH OF NEW JERSEY CORP., ANNAPOLIS, MD.**

Mr. LUCZAK. Mr. Chairman and members of the subcommittee, I am a senior investigative engineer in the Safety Engineering Directorate of Cadcom, a division of ManTech of New Jersey Corp. My division's offices are located in Annapolis, Md.

In brief, the safety engineering directorate offers engineering investigation and analysis services to insurance companies, attorneys, manufacturers, and utilities in the area of loss and failure analysis. Our primary responsibility to our clients is to investigate and analyze accidents and losses and to present unbiased conclusions and opinions based on the engineering and scientific facts available.

On December 18, 1978, Cadcom was requested by Reliance Insurance Co. to investigate a fire that occurred at approximately 12:10 p.m. on December 7, 1978, at the Suitland Federal Center—the topic under discussion here today.

It was requested that Cadcom investigate and photodocument the remains of the fire scene at building A, review the Prince Georges County Fire Department's reports, inspect the Kocharian Bros.' electric drill and work accomplished to determine their potential complicity as a causal agent of the fire, and to provide an independent opinion as to what was the most probable cause of the subject fire.

Our investigation began on December 20, 1978, with an onsite inspection and a subsequent series of laboratory tests conducted on the electric drill that was being used by the Kocharian employees on the morning of the fire.

On January 2, 1979, I interviewed Mr. Edward Kocharian, and Mr. Winston R. Thorne, Jr., the Kocharian Brothers' foreman at building A on the day of the incident, and conducted an inspection and photodocumentation of the building. I also reviewed the Prince Georges Fire Department's reports and researched the available literature on cellulose nitrate film as a means of reconstructing the incident.

A detailed report of those investigations, tests, observations, and Cadcom's conclusions was submitted to Reliance Insurance Co. on March 19, 1979, bearing Cadcom Report No. 79-08, of which I believe you now have a copy.

The investigation results to date indicate four areas for consideration and analysis of most probable cause of the fire and explosion.

One was the most probable area of initial ignition; two was the Kocharian Brothers' contractors' tools and work accomplished; three was the fire marshal's findings of spontaneous ignition; and four was other possible causes.

First of all, fires and explosions leave behind a pattern of destruction that can be analyzed to a high degree of certainty for determination of the most probable area of initial ignition. In the case in question, the external explosion pattern on the building, the internal heat pattern, and eyewitness reports point with a high degree of probability to vaults 7, 8, and 9, with vault 8 the most probable point of initial ignition.

The second area for consideration is the Kocharian tools and work. The Kocharian Brothers' employees had been working in vaults 10 through 19 on the morning prior to the incident. Their drill had been left in vault 10 approximately 40 minutes prior to the first explosion. They left at about 11:30 that morning. In vault 10, they had been drilling holes in the ceiling and putting tapped metal inserts in. In No. 10, they had not placed tapped metal inserts.

Tests and inspection of the drill indicate quite conclusively that it was not a causal agent for the fire. The drill showed clear signs of external heat damage vice internal malfunction or point of initial explosion-type damage. Laboratory analysis of the drill indicated that the drill was electrically sound and operational even after having been externally scarred by the incident.

In fact, Mr. Chairman, at that point there was absolutely no electrical fault in the drill. We ran the drill in our labs and drilled holes in large 2 by 4's, and it functioned properly at that time.

One thing I might point out here—which came up earlier—is that it was an open commutator. On an open commutator, you will see sparks. If you have a drill in your home, a normal hand drill, it will have commutators with carbon brushes. You do see a spark, but it is not a spark in the classic sense of sparks to get fires started in the wood. It is an electrical arc which is visible energy as the brush passes from one commutator bar to another. It could possibly cause an explosion or a fire in that situation, but if it was going to, it would at that instance because it only exists for that instance when the drill is running.

Mr. INGRAM. If I could just clarify that, what you are addressing now is the point that had been raised in the GSA ad hoc investigative committee fire report—that the fire may have started in vault 10 as a result of a spark from a drill hitting a piece of cardboard or other flammable material.

Mr. LUCZAK. I missed that. Maybe that was on Tuesday, but I did hear talk this morning of the drill and sparks.

Mr. INGRAM. This was what the GSA committee had pointed to as a possible cause of the fire.

Mr. LUCZAK. That is in the second part here where I discuss the physical and electrical condition of the drill, coupled with the fact that

it had not been operated for approximately 40 minutes prior to the explosion, which effectively eliminates it as a point source of ignition.

But there was another avenue as a cause of the fire that we looked at. That is the possibility of a hot metal chip caused by the drill striking a steel structural support in the cement ceiling. This was investigated. The ceiling, itself, was cement, and, most definitely, although I did not find them, I would assume that there are structural supports in there to hold the ceiling and make it more structurally sound.

As for work accomplished by Kocharian employees, the following was noted: One, holes had been drilled in the ceilings of vaults 10 through 19; two, tapped metal inserts had been inserted in the holes in vaults 11 through 19; three, no inserts had been placed in the holes in vault 10 prior to breaking for lunch.

The untapped holes were scraped with a knife, and I could detect no metal in these holes, although there might very well be. Other than completely taking the ceiling apart, I could not tell you for sure. Yet, even if a hot metal chip had been produced by the drilling operation, in my opinion, the following sequence would have been required for it to have acted as a source of ignition.

One, considering the environment in the vaults, it would have been most probable that, had such a chip existed, it would have had the highest probability for ignition at the moment it was formed. This would have been the moment it would have had the highest temperature.

Two, if it fell to the floor or onto one of the shelves, unless it fell onto a nest of combustible material such as rags or newspapers, it would have immediately begun to cool. Since no such burned or unburned combustible materials were found on the January 2, 1979, inspection that I made, and since the first explosion occurred some 40 minutes after the last drilling operation, it is highly unlikely that such a hot chip was the source of ignition.

Three, the third area of interest is the fire marshal's findings of spontaneous combustion. The Prince Georges County fire investigations concluded that the first explosion occurred in vault 8 or vault 9 as a result of spontaneous combustion of the cellulose nitrate film.

Although lack of another source of ignition, coupled with the inherently flammable characteristics of decomposing cellulose nitrate film point to spontaneous combustion as the likely cause, there are some questions that must be addressed to firmly establish this conclusion.

The historical literature is quite clear in establishing the ignition and rapid combustion hazards of cellulose nitrate film. In particular, when in advanced stages of decomposition, nitrate film offers the most serious threat of spontaneous combustion.

It was noted in a March 1950 article in the Society of Motion Picture and Television Engineers Journal entitled "Spontaneous Ignition of Decomposing Cellulose Nitrate Film," that spontaneous combustion occurred at ambient temperatures of 106° F, in a 1954 test.

There are numerous factors, such as temperature, humidity, and physical arrangement that can effect decomposition and probability of ignition. In general, there is no established rule of thumb, and, in fact, there is a distinct lack of current data with regard to the spontaneous combustion of nitrate-based film.

In reviewing the situation in building A on the day of the incident, the following items were noted with regard to a potential spontaneous combustion situation.

One, "short cycling" of the air-conditioning system reportedly caused a low level of the cooling agent resulted in the air-conditioning system turning on and off frequently.

It was noted in the report of Lt. D. J. Malberg of the Prince Georges County Fire Investigation Division that, "on the morning of the fire, eyewitnesses related that the suction and discharge line for the Freon gas and liquid were both hot." A hot outlet line from the air-conditioning compressor could, in fact, cause the air-conditioning unit's outlet to the recirculation fan to be in excess of the building ambient temperature. This situation could cause a temperature rise in the vaults. Moreover, it was reported that this short cycling situation had existed for at least 3 to 4 weeks.

Two, Kocharian employees reported that normally it was necessary for them to wear jackets while working in building A. However, on the day of the incident, it was warm enough to go without jackets.

Three, it is noted that the film stored in building A was in the range of at least 30 to 35 years old. In other words, time alone could have contributed to decomposition, thus placing it in a category of higher probability for spontaneous combustion than for fresh nitrate stock.

With the general information concerning spontaneous combustion of nitrate film and the specific situation existing in building A on the day of the incident, the following avenues of investigation are set forth as recommended step to more firmly establish the probability of spontaneous combustion as being the source of that ignition.

One, a review of building A nitrate film inspection logs to determine inspectors' evaluation of degree of decomposition; two, obtain any undamaged film samples that were salvaged from building A for degree of decomposition evaluation and spontaneous combustion laboratory tests; three, obtain film samples of equivalent age from vaults in building C for similar inspection and test; four, conduct a detailed inspection of the air-conditioning system in an attempt to establish the outlet temperature of the unit supplying the vaults. From this analysis, it would be possible to project an estimate of ambient temperature in the closed vaults at the time of the incident. And, lastly, until such time that spontaneous combustion can be established to a high degree of certainty as the source of ignition, other possible sources cannot be ruled out. This would require a thorough sifting of the remains of building A.

I might mention that I do not have another source in mind. The current literature and the information available as to the point at which cellulose nitrate film will spontaneously combust does not allow for a very firm conclusion at that point, even though a mass of the evidence points in that direction.

As a result of our tests and inspections, with regard to the fire and explosions at the Suitland Federal Center, building A, the following are our conclusions.

One, the most probable area of initial ignition, based on fire, explosion, and burn patterns, and eyewitness reports, is vault 8.

Two, a highly suspect source of ignition is spontaneous combustion of the cellulose nitrate film stored in building A, for the reasons I outlined before: The age of the film, the spontaneous combustion

characteristics of cellulose nitrate film in advanced stages of decomposition, the reported air-conditioning problems that could have raised vault ambient temperatures to the spontaneous combustion range, employee reports of high ambient temperatures in building A that morning, the general progression of the fire and explosions to 22 of the 27 vaults, and the lack of any established identified source of ignition. It is noted that to establish spontaneous combustion as the source of ignition to a higher degree of certainty, additional tests and inspections are recommended.

Three, it is our opinion that the drill being used and the work accomplished by Kocharian Bros. employees were most probably not causal agents for the fire and explosion. This conclusion is based on tests of the drill and inspection and analysis of work accomplished.

Mr. PREYER. Thank you very much, Mr. Luczak.

You have given us some things that the GSA investigating committee should have looked at.

From your experience as a fire investigator, do you have any further comment on the methods that the investigative committee used in looking at that fire?

Mr. LUCZAK. I have not seen that report, Mr. Chairman—the ad hoc committee report. I have heard reference to it today and comment on it, but I have not read that report.

Mr. PREYER. All right.

Mr. Kindness?

Mr. KINDNESS. Thank you, Mr. Chairman.

I apologize for being tardy in coming in to listen to your testimony, Mr. Luczak.

In the course of your examination of these premises, did you have any occasion to determine any reason why the fire and explosions seemed not to affect vaults 15 through 20 and 26, as compared to the rest of the vaults?

Mr. LUCZAK. No, I did not come to a conclusion. It was somewhat confusing to me as to why it did not go in that direction. When the blowout panels go, you will get a heat pattern going in one direction, and it is sometimes hard to tell after, especially with cement blocks, why it went in the particular direction that it did go.

Mr. HUTCHENS. Mr. Chairman, if I could interrupt—I think the reason that vault 15 through 20 were not affected was that they contained either entirely or mostly safety-based film.

Mr. LUCZAK. That is possible. The vaults were empty at the time we looked at them.

Mr. KINDNESS. In the examination of those premises, were you able to gain any impression as to the effect of the firefighters' ventilating the buildings, that is, making openings for ventilation after the fire had started?

Mr. LUCZAK. I did read the fire marshal's report. It would be hard to determine. In the full report that has been given to the subcommittee, we discuss in some length some theories as to why it spread to so many of the vaults. Definitely, the firemen opening doors, if the doors remained open, would have encouraged it to spread to that vault. However, it spread to vaults where doors had not been opened, as well.

The results of the testing of the air-conditioning system could probably enlighten us a good bit as to why it spread to that degree.

One, if the air-conditioning system was actually causing the building to be heated, it would mean there was something very wrong because the basic air-conditioning cycle, even in adverse situations, would normally not supply heat. No matter how low that Freon level got, I would not expect to see heat in the outlet. There is a very small pin-hole orifice which the gas must pass through. Normally, it will cycle around that point, but it will not pass hot gas. That has been my experience.

So, if in fact, as it says in the report, the inlet and outlet were hot, there was something very seriously wrong with the air-conditioner, or, perhaps, there was a heat pump system on the air-conditioner which was tripped on. I do not know that air-conditioning system. But if that is true—if the inlet and outlet were hot—you could be heating those vaults. That might very well have been why it progressed through 22, 23, and however many vaults it did explode in.

The opening of doors was just one more thing on top of that.

Mr. KINDNESS. There was testimony this morning to the effect that Freon was added to the air-conditioning system with some frequency in the 3 or 4 weeks preceding the fire of December 7, 1978.

If that sort of frequency of recharging the system was required, it would indicate a leak of some considerable degree, of course, which suggests that the system could actually be taking in other gases from the atmosphere.

Under those circumstances, is it not possible that the system could be operating with, perhaps, more ambient air than with Freon?

Mr. LUCZAK. It is very possible.

Mr. KINDNESS. And thus produce a hot side on both sides of the system?

Mr. LUCZAK. That is possible.

Mr. KINDNESS. If the air-conditioning system was malfunctioning in that way, and if a fire did start in vault 8, was there a way, due to the manner of design of the air-conditioning system, that that fire could have been conveyed from vault to vault through the air-conditioning system?

Mr. LUCZAK. I do not know the answer to that. I am not that familiar with the air-conditioning ducting, itself.

If the system continued to blow, I would say, if it continued to operate, that there was probably a lesser chance. But stopped, then there was a place for back pressure—it had a free path of back pressure to go through the system.

But I am not familiar with the ducting in that building and really could not answer that question.

Mr. KINDNESS. Thank you, sir.

Thank you, Mr. Chairman.

Mr. PREYER. Thank you.

Mr. Butler?

Mr. BUTLER. I have no questions, Mr. Chairman.

Mr. PREYER. Let me ask one final question as to the cause of the fire.

What about a cigarette from one of the workmen that could have been left smoldering in the vault? Could that have caused the fire?

Mr. LUCZAK. I think it would depend on where it was located. I would have had to know more about the state of decomposition. A tip of a cigarette burns at about 500° if it is just sitting in an ashtray;

with any air blowing over it, it could go as high as 800°. So, it is well in excess of the ignition point.

If you held a cigarette to cellulose nitrate film, you could cause a fire. But for that cigarette to cause a fire, the gases of decomposition would have had to have been present, or the cigarette would have had to be very, very close to the film, itself—one of the two—maybe to the point even where some of the tests I have read have said that, on the New York fire, if the cigarette were laid on top of a can, localized heating might be able to cause it.

A cigarette in there would offer a very high probability—if it were in the right place—of igniting.

Mr. PREYER. Was there any evidence of a cigarette being in there?

Mr. LUCZAK. I particularly went through vault 10, looking for debris—something a spark might fall into to have ignited the first fire and explosion. I could not find a cigarette that appeared to have been there. But by the time we got there, it was nearly a month later, and there were numbers of cigarettes that obviously were there after the explosion, but I could not find a sign of a cigarette that appeared to have been there prior to.

Mr. PREYER. Thank you very much, Mr. Luczak, for your testimony. We appreciate your being here today.

Mr. LUCZAK. Thank you, Mr. Chairman.

Mr. PREYER. Our next witness is Mr. William G. Vanden Bossche, director of insurance for Universal Studios, which agreed to install the sprinkler system in building A at the time that Universal donated its collection of newsreel footage to the National Archives.

Mr. Vanden Bossche, will you be sworn?

Do you solemnly swear that the evidence you are about to give this subcommittee shall be the truth, the whole truth, and nothing but the truth, so help you, God?

Mr. VANDEN BOSSCHE. I do.

Mr. PREYER. Thank you.

Your entire statement will be made a part of the record. So, if you could briefly summarize it, we might have questions for you.

**STATEMENT OF WILLIAM G. VANDEN BOSSCHE, DIRECTOR OF INSURANCE, UNIVERSAL STUDIOS, NEW YORK, N.Y.; ACCOMPANIED BY GAYLE TITLE, COUNSEL**

Mr. VANDEN BOSSCHE. Good afternoon. I am William G. Vanden Bossche, director of insurance for MCA, Inc., and its subsidiary companies including Universal City Studios, Inc.

I have with me today counsel, Gayle Title.

I will attempt to summarize my prepared statement so that you can understand Universal's position on this matter.

I have been an insurance executive for 22 years and am a member of the Risk and Insurance Management Society, a professional association of insurance executives. I have, on many occasions, spoken at insurance conferences on the protection of property and assets related to motion pictures and have continuing contacts with other insurance executives on the subject of film preservation.

The topic of these hearings is of major concern to the entire motion picture industry. I and my counterparts at the other major film studios

share responsibility for preserving thousands of our country's film treasures. It is a responsibility that none of us takes lightly.

I am appearing today to discuss Universal's donation in 1970 and 1974 of approximately 17.5 million feet of film to the National Archives of the United States, as well as the tragic loss of some of that film in a fire at the Suitland, Md., facilities of the National Archives in December 1978.

The film donated to the Archives by Universal consisted primarily of its collection of newsreels for the years 1929 to 1967. The period covered by Universal's newsreels is one of the richest in American history, from the stock market crash of 1929 through the Great Depression and subsequent New Deal, to the Second World War, and the rapid social changes of the 1960's.

We always considered that Universal's collection was more valuable than other collections because, unlike those other collections, it had not had extensive public exposure by use in feature films. Also, as a result of the very extensive cross-reference indexing system utilized by Universal—which indexing system was also donated to the Archives—the collection is a superior resource for scholars and so forth.

Additionally, because of our inspection program and our policy of storing the films in special vaults, the newsreels remained in essentially the same condition throughout the period that they were in Universal's possession.

I might digress here. This is not to say that we did not ever suffer any deterioration because it is a foregone conclusion that, with nitrate film, you will have deterioration. We elected, over a period of years, to dispose of all material which showed those various signs of deterioration.

In the late 1960's, the Government, recognizing the historical, political, and social importance of this collection, requested that Universal donate this collection to the American people.

In 1970, Universal agreed to donate its newsreel collection to the National Archives. An initial gift of a portion of the collection was made to the Government on November 18, 1970. On November 25, 1970, Universal entered into an agreement with the National Archives whereby Universal was to transfer possession of the remainder of its collection to the Archives. The Archives, in turn, was to make the collection available to the public and to scholars for research and other similar uses. Under that agreement, the Government was to maintain and inspect the collection and to convert to safer, acetate film all of the nitrate film deemed to be of cultural or historical significance.

In 1970 and 1971, Universal shipped the films included in the initial gift plus certain of the films covered by the November 25, 1970, agreement.

The initial agreement between Universal and the Government contemplated that each subsequent shipment would consist of 100,000 feet of film and that each such shipment would be made only after the previous shipment had been converted to acetate film.

However, in 1973, the Government advised Universal that it had vault space available in building A of the Suitland facility and suggested that Universal transfer the entire remainder of the films in the newsreel collection at that time.

Universal recommended to the Archives that in order to protect the footage and the public's safety, prior to the delivery of the remainder

of the film, the Government should install a sprinkler system in building A. This building, which housed a great many films acquired by the Archives, including many from donors other than Universal, had no sprinkler system whatsoever.

The Government rejected this recommendation but stated that, if Universal felt a sprinkler system was desirable, Universal could install, at its own expense, such a system, subject to the Government's review and approval.

After discussions with the General Services Administration as to the type of system it would approve, Universal agreed to supplement its gift by offering to contract with a third party to install fire doors and a highspeed, automatic sprinkler system, including 5 years' inspection and maintenance for that system, throughout all of the vaults in building A of the Suitland facility.

The sprinkler system design approved by GSA was installed in building A in the summer of 1973. The system was inspected following its installation by representatives of both Universal and GSA to insure that it conformed with the agreed-upon specifications. The remainder of Universal's newsreel collection was subsequently delivered to the Suitland facility.

In March 1974, Universal made an additional gift, supplementing the earlier gift and agreement and relinquishing to the National Archives all remaining interests it had in the newsreel collection.

Universal thus relinquished all economic rights in those films to the National Archives in 1974. Since delivery of the films to the Archives, Universal has made certain use of these films. Since 1973, for example, Universal has made use of the collection on perhaps as many as 15 occasions, primarily as a resource tool to authenticate set design, costuming, and historical site data for film production. All members of the public, including other filmmakers, are entitled to the use of these films for those purposes and on the same basis. And I think we had evidence this morning that such use has and is being made.

As the subcommittee well knows, in December 1978, a fire occurred in building A of the Suitland facility. According to news articles, which had been our only previous source of information, a substantial amount of the newsreel collection Universal donated to the Archives was destroyed in that fire.

Universal has no information other than from these articles about the cause or effects of the fire. However, based on my experience with property protection, several factors come to mind which may have caused the reportedly extensive damage. The fire doors might have been left open, so that the fire was not contained in one vault. The sprinkler system might have been altered in the course of building modifications, so that one or more elements of the system were impaired. The film might have been allowed to deteriorate so extensively that, even if the sprinkler system functioned properly, the water released by the system was insufficient to extinguish or contain the fire.

The vast majority of the films in the collection donated by Universal were nitrate films. Under the 1970 agreement, the Government was required to inspect and maintain these films and, where appropriate, convert nitrate films to acetate.

I cannot overemphasize the importance of the periodic inspection of nitrate films. These films, if inspected for deterioration and maintained so as to eliminate deteriorated portions, can be preserved

for many years. If such inspection and maintenance programs are not adopted, nitrate films can become highly flammable, ignite, and release toxic and explosive gases.

Proper preservation of nitrate films also requires physical systems to minimize the spread of fire and the generation and infiltration of toxic gases. However, no fire containment system can compensate for insufficient inspection and maintenance. Proper inspection and elimination of deteriorated film is the most important means of preventing film loss.

I will not dwell on this because this subject has just been very amply covered by Mr. Degenkolb.

In addition to the NFPA standards which have been referred to by many of the people today, there have been a lot of publications by the film industry and publications by Eastman Kodak. Additionally, there was a published article, which the subcommittee may find useful, by Lawrence F. Karr, associate archivist of the American Film Institute, which appeared in an International Alliance of Theatrical and Stage Employees Bulletin in the summer of 1972.

As that article indicates, in the earlier stages of deterioration, there is really little danger of fire. There is danger, of course, always when you can ignite something at 300 degrees. It is as deterioration progresses that the ignition point goes down.

Ideally, precautionary measures to be taken to avoid the loss of film and the potential of fire from deterioration include opening each can of film in storage at least once every 6 months to inspect the film for signs of deterioration.

There are several such signs: image deterioration, image loss, film softening, and decomposition. If any of these signs are noted, the film should be pulled from storage. The film should then either be deleted from inventory or reproduced on safety film. In the early stages of deterioration, there is little danger of fire. However, the deteriorated film should be destroyed.

I should also point out—and this is a very important factor—that all safety film should be placed in storage separate from where nitrate films are stored. This is to insure that if a fire should occur because of deteriorated nitrate films, the safety films would not be destroyed along with the nitrate.

In conclusion, I would like to say that Universal is very interested in doing what we can to prevent the recurrence of this very tragic loss of valuable film. We would like to cooperate with the subcommittee in an effort to prevent further deterioration and destruction of films in the possession of the National Archives and other Government agencies.

Thank you.

Mr. PREYER. Thank you very much.

We enjoyed the film clips yesterday morning. I think it makes clear that your description of this as a tragic loss is an understatement.

We do not want to look a gift horse in the mouth, as Mr. Butler said this morning, but according to the deed—from what I understand—Universal was supposed to inspect and maintain the sprinkler system for 5 years after it was installed. Was this ever done?

Mr. VANDEN BOSSCHE. Well, as I read the deed, we were to contract to have a sprinkler system installed, maintained, and inspected. As far as I am concerned, yes, that was done.

Mr. PREYER. So, you had the sprinkler system installed, and you left inspection up to the Archives?

Mr. VANDEN BOSSCHE. To the sprinkler contractor. The sprinkler contractor, in his contract to install, agreed to this. This was part of his contract.

Mr. PREYER. Part of his contract was to inspect it also?

Mr. VANDEN BOSSCHE. Yes; to maintain and inspect it.

Mr. PREYER. Thank you.

Mr. Kindness, do you have any questions?

Mr. KINDNESS. Thank you, Mr. Chairman.

Mr. Vanden Bossche, I would ask you whether the contract between Universal and the sprinkler contractor was assigned to the GSA? Would you have any record of what occurred there?

Mr. VANDEN BOSSCHE. I have no knowledge of that.

Mr. KINDNESS. You have no knowledge about whether there was complete performance under the contract, by way of inspection and maintenance?

Mr. VANDEN BOSSCHE. No, sir.

Mr. KINDNESS. I have no further questions.

We thank you for your patience.

If there is any knowledge that you have or can gain about what happened with that contract and the performance under it, we would very much appreciate knowing about it.

Mr. VANDEN BOSSCHE. We are searching our files. Most of the contact between Universal and the Government, in terms of the sprinkler contract, was handled by a man out of our New York office who has subsequently retired. We are searching our archives to try to find pertinent data right at the moment.

Mr. KINDNESS. I know how that is. There is a guy coming to see me next week from the company I used to work for about an old matter like that. I have retired, too.

Thank you, Mr. Chairman.

Mr. PREYER. Without objection, any additional information you can submit on that will be included in the record at this point.

[Submissions to additional subcommittee questions follow:]

RICHARDSON PREYER, N.C., CHAIRMAN  
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 PETER N. HOSFELDER, PA.  
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 225-3741

NINETY-SIXTH CONGRESS  
**Congress of the United States**  
**House of Representatives**  
 GOVERNMENT INFORMATION AND INDIVIDUAL RIGHTS  
 SUBCOMMITTEE  
 OF THE  
 COMMITTEE ON GOVERNMENT OPERATIONS  
 RAYBURN HOUSE OFFICE BUILDING, ROOM B-349-B-C  
 WASHINGTON, D.C. 20515

July 24, 1979

Mr. William G. Vanden Bossche  
 Director of Insurance  
 Universal Studios, Inc.  
 Universal City, California 91608

Dear Mr. Vanden Bossche:

On behalf of the subcommittee, let me express thanks for your appearance at our June 21 hearing concerning the National Archives film-vault fire at Suitland, Maryland, this past December.

We were unable to ask a number of questions that are necessary to complete the hearing record, and would appreciate a written response to the questions attached.

Cordially,

Richardson Preyer  
 Chairman

Enclosure

QUESTIONS FOR UNIVERSAL STUDIOS

1. You testified before the subcommittee that the motion picture industry does not take lightly a responsibility to preserve film. What has Universal done to convert nitrate film?
2. You also testified that the film collection had been stored in special vaults and had remained in essentially the same condition throughout the time Universal had it. Yet, Archivist James B. Rhoads testified that the studio's vaults had not been air-conditioned. Was Dr. Rhoads' statement accurate and would it be possible for nitrate film to remain in essentially the same condition for decades if it had been stored in vaults that were not air-conditioned?
3. You testified that the government asked that Universal donate the collection. Does the studio have a record of who in the government asked for the donation?
4. You testified that Universal agreed to supplement its donation by arranging to have fire doors, as well as a sprinkler system, installed. Were these supposed to be vault doors? If so, why weren't they installed?
5. You testified that Universal representatives, as well as others from the General Services Administration, inspected the sprinkler system after it was installed. Why didn't the studio's representative notice that it was not a high-speed deluge system?
6. You testified that inspection of film is essential. Did you mean inspecting it reel-by-reel?
7. You testified that the studio is searching its records for details of the contract to install the sprinkler. Have the records been found, and if so, can the subcommittee please have them?
8. What tax benefit did Universal enjoy in donating the film?
9. How much use has Universal made of the film?



UNIVERSAL CITY STUDIOS, INC., 100 UNIVERSAL CITY PLAZA, UNIVERSAL CITY, CA 91608, 213-985-4321

September 12, 1979

Mr. Richardson Preyer, Chairman  
 Congress of the United States  
 House of Representatives  
 Government Information and Individual Rights  
 Subcommittee of the Committee on Government Operations  
 Rayburn House Office Building, Room B-349-B-C  
 Washington, D.C. 20515

Dear Chairman Preyer:

First of all let me apologize for the late reply to your letter of July 24, 1979 and the attached listing of questions. We have been away from the office a good part of the time and additionally needed to make certain inquiries.

The following are answers to your questions in the same sequence as in the listing:

1. In order to preserve its nitrate film Universal regularly inspects its nitrate negatives and the materials installed to protect these negatives to determine if any deterioration has occurred. Universal, from time to time, also appropriates funds used to convert deteriorating negatives from nitrate to acetate film and to improve and install additional protective material in its film library.
2. Air-conditioning of film vaults, a relatively modern development, impedes the deterioration of nitrate film. However, air-conditioning does not prevent the deterioration of nitrate film, and nitrate film can remain in good condition even without air-conditioning in certain instances. For example, Universal has some nitrate film which is more than 50 years old, which was only recently placed in air-conditioned vaults, that is in virtually as good a condition as when first acquired by Universal.

At the present time, all of Universal's nitrate film is stored in air-conditioned vaults as part of the effort to slow potential deterioration of nitrate film. However, certain of Universal's vaults, located until 1975 in Woodbridge, New Jersey, were not air-conditioned. It is Universal's understanding that at the time the donated newsreel collection was placed in the National Archives' vaults in Suitland, Maryland, these vaults were not air-conditioned either.

3. On the basis of my review of correspondence in Universal's files regarding this matter, it appears that the suggestion that Universal donate its newsreel collection was first made to the Company verbally by unspecified individuals associated with the National Archives. Mr. James W. Moore, Chief of the Audio-Visual Branch of the National Archives and Record Service, Washington, D.C. 20408, appears to have been the individual associated with the Archives most directly responsible for Universal's donation of its newsreel collection.

4. In 1973, Universal agreed to supplement its donation of its newsreel collection by arranging to have vault doors as well as a sprinkler system installed in the vaults housing the collection. These vault doors were not to be fire doors, but steel doors designed to inhibit the effect of explosion within a single vault. The consultant, now retired, who was responsible for arranging for the installation, has advised me that such doors were in fact installed. The testimony adduced by the subcommittee at its hearing confirms that these doors were installed, but were propped open at the time of the fire and that the open doors, along with the disconnected sprinkler heads, permitted the fire to spread from vault to vault.
5. Universal's consultant has advised me that a deluge system with deluge valves was ordered and installed as agreed upon. It should be noted that this assertion is not inconsistent with the evidence before the subcommittee which indicated that at the time of the fire, the sprinkler system had standard sprinkler heads with fusible links. I have no knowledge when these sprinkler heads were installed. However, such standard sprinkler heads are installed in a deluge system for purposes of pressure testing, after which the fusible links are removed and the system is operative. The fact that, as the subcommittee's investigation revealed, the sprinkler heads in each vault had been tampered with (and one-third of the heads had been disconnected) indicates that changes were made in the sprinkler system subsequent to its installation and testing.
6. Inspection of nitrate negatives is essential and must be accomplished on a regular schedule which should be not less than semi-annual. At Universal we visually inspect each reel of film.
7. I recently spent two full days searching Universal's inactive files in New York for files which might relate to the subcommittee's inquiry. I also engaged the assistance of the retired consultant responsible for arranging for the installation of the sprinkler system.

However, despite these efforts, Universal has thus far been unable to locate any files in any of its locations containing the contract for the installation of the sprinkler system, and has been able to locate only certain accounts payable records reflecting payments to the sprinkler system contractor.

8. In its corporate tax returns, Universal has claimed the tax deductions to which it was entitled under the Internal Revenue Code as a result of its donation of its valuable newsreel collection to the National Archives. The returns for each year in which such a tax deduction was taken have been audited and closed by the Internal Revenue Service.

9. Universal has used some of the films in the newsreel collection donated to the National Archives as a reference tool, much as it hopes and understands that other motion picture producers have. Universal's records reflect that it has used the films in the collection primarily to provide documentation for costuming, set design and historical sites for motion pictures such as "The Hindenburg", "Midway", the Senator McCarthy story "Tail Gunner Joe", "W.C. Fields & Me" and "Gable & Lombard".

However, I believe a complete record of all the persons and entities, including Universal, who have used the film collection since its donation should be within the custody and maintenance of the National Archives.

Yours very truly,



W.G. Vanden Bossche  
Vice-President  
Universal Pictures, a division of  
Universal City Studios

WGVB/dh

cc: George Smith  
Shel Mittleman

Mr. PREYER. Just to make sure that I understand what your answer was to Mr. Kindness there, as far as you know at this time, Universal has no record from the contractor of this inspection having ever been done?

Mr. VANDEN BOSSCHE. As far as I know right now, Mr. Chairman.

Mr. PREYER. Thank you very much for being with us today. I hope we can enjoy some more of your footage, outtakes, and whatnot in the future.

Mr. VANDEN BOSSCHE. Thank you.

Mr. PREYER. Our final group of witnesses is from the Library of Congress, which also maintains a vault building at Suitland to store nitrate film. The members of this group will be telling us how they deal with the problems of both storing the film and converting it to safety-based film.

Gentlemen, please come forward and be sworn.

Do you solemnly swear that the testimony you are about to give this subcommittee will be the truth, the whole truth, and nothing but the truth, so help you God?

[Chorus of "I do's."]

Mr. PREYER. Thank you. If you could summarize your statement in view of the hour, we would appreciate, and then we will ask questions of you.

You are Mr. Curran?

**STATEMENT OF DONALD CURRAN, ASSOCIATE LIBRARIAN OF CONGRESS, WASHINGTON, D.C.; ACCOMPANIED BY ERIC BARNOW, CHIEF, MOTION PICTURE BROADCASTING AND RECORDED SOUND DIVISION; PAUL SPEHR, ASSISTANT CHIEF, MOTION PICTURE BROADCASTING AND RECORDED SOUND DIVISION; AND STEPHEN E. BUSH, SAFETY OFFICER**

Mr. CURRAN. Yes, Mr. Chairman.

Before I start, I would like to introduce my associates. Mr. Eric Barnow, Chief of the Motion Picture Broadcasting and Recorded Sound Division, who, in addition to being Chief of this Division for the last year and a half, is probably one of the outstanding historians on film and television. If some of your questions concern that aspect, I am sure he can give authoritative answers.

Paul Spehr, on my right, is the Assistant Chief of the Division and has worked in our film program for many years.

Stephen Bush, our safety officer, is on his right.

I would like to read parts of my statement, but I will skip through it as quickly as I can so that we can get on with the particular questions that you have of the Library staff.

I would like to begin my testimony with a general statement about the nature of the Library of Congress' collection of motion pictures and other audiovisual materials.

In 1870, when the copyright law was changed to make the Library of Congress the recipient of all items deposited for protection, the present range of the collection was confirmed. Prior to that time, it had been essentially a book collection, but at that time we began to collect graphic arts, posters, photographs, maps, and similar materials.

The first American motion picture came into the collection as a copyright deposit in 1894. The primary objective of our collection at the Library is to have this material available for researchers looking at the record of American civilization. We collect foreign materials, but with greater selectivity than applies to materials of American origin.

Prior to 1912, the Library retained copyright deposits of motion pictures in the form of prints on paper, made from the original negatives. In 1912, the copyright law was amended to make possible the deposit of prints on motion picture film, but since film was not considered a permanent medium, they were not retained after copyright registration. Instead, the Library retained scripts, stories, summaries, and other supporting documents of the films.

In the late 1940's, the motion picture industry began to phase out 35 millimeter cellulose nitrate stock. The advent of safety film in 35 millimeter made possible a more permanent collection of early motion pictures by photographically copying the nitrate onto safety film. By 1958, the Library was receiving support for this activity from Congress and began, in a limited way, to reprint small amounts of nitrate motion picture film in its possession onto permanent film stock.

The fact that a certain portion of it is on nitrate stock is simply a factor with which we must cope.

Begun in the late 1950's and relying, first, on outside laboratories, the nitrate duplicating program entered a new and vigorous phase in 1970, with the establishment of our own duplicating laboratory.

In the present decade, we have converted more than 30 million feet of nitrate to safety film. The laboratory has become the main force in our conversion program. In recent years, it reached an output of 4 to 6 million feet per year.

We intend to relocate our laboratory in 1980, and we hope to substantially increase production. We have 70 million feet of nitrate film in our Wright-Patterson Air Force Base vaults and our Suitland vaults awaiting conversion.

The historic importance of nitrate preservation is exemplified by numerous elements in our collections. The important Theodore Roosevelt Collection shows life from the earliest days of this century. Preservation of this collection has been completed, along with a computer-based catalog which is soon to be published. With the move to the James Madison Building, scholars will have informed access to this unique collection.

The salvaging of another significant collection, the Kleine collection, from the early years of the film industry, both fiction and documentary, has also been completed, and an index has been compiled. German, Italian, Japanese, and other films came to the Library after World War II via the Alien Property Custodian Act and represent another major collection whose duplication is nearing completion. It originally included 29 million feet of nitrate in fiction, documentary, and newsreel from the early 1930's and 1940's—an extraordinary record of how a world had gravitated toward war.

Of this material, 9 million feet were disposed of because of deterioration and damage. Copying of the remainder has now been virtually completed. Numerous shipments of the originals have been returned

to the originating countries over the years. During 1979, more than 7 million feet are being shipped back to West Germany alone.

At present, it is the American cultural heritage that is the focus of our preservation program. In selecting materials for preservation, we consider its physical condition and at the same time try to fill crucial gaps in our film holdings.

Through the American Film Institute and the National Endowment for the Arts, the work is coordinated with the preservation work of the Museum of Modern Art, the George Eastman House, and a few other archives, to avoid duplication of effort.

To date, we have not had an accident in our nitrate preservation activities. All nitrate film is stored in specially constructed facilities, which, of course, we have been hearing about today, at Suitland, Md. However, most of it is at Wright-Patterson Air Force Base in Dayton, Ohio. The Suitland facility, as was pointed out earlier, includes 27 vaults in which we store a capacity of about 900 cans of film. At Wright-Patterson, however, we have 99 vaults, each capable of storing over 1,000 cans.

Film arriving at Suitland or Wright-Patterson is inspected at once. Film showing serious deterioration is removed and destroyed. Deterioration can be clearly observed in a number of stages. The film becomes discolored and grows tacky; slight bubbles appear on the film; then it begins to ooze a froth-like substance; and finally it turns to a rust-like powder, at which stage, as has been pointed out here, general literature suggests it combusts at  $106^{\circ}$  in tests that have been made in the past.

Elimination long before this stage is, of course, essential. At both Suitland and Wright-Patterson, cans are opened twice a year and examined for deterioration. Temperature and humidity in all vaults are monitored, and sprinkler systems and fire doors are regularly inspected.

With proper storage conditions, deterioration is slow. When nitrate is in good condition, as was suggested earlier, ignition or flash point is somewhere between  $300^{\circ}$  and  $356^{\circ}$ .

Conversion of the film is complicated. Often, the first safety copy we make may be the only known copy. Therefore, it should not be used as a viewing copy. Instead, it serves to generate a duplicate negative from which a viewing copy can be made. Meanwhile, the nitrate material must be held until the first safety copy has been carefully inspected for quality.

Work with nitrate is highly specialized. Film shrinks over the years, and our laboratory has had to develop equipment to accommodate various kinds and degrees of distortion. A few small commercial laboratories still handle nitrate and are available for supplementary work when the problems are routine. But their quality is not always uniform, and the use of such laboratories involves shipping problems.

The National Archives has also at times assisted us in the cooperative spirit that has marked our relations in a number of matters involving motion picture film as well as other material. But, in general, we feel we must continue to be largely dependent on our own facilities.

Our plans call for reestablishing a laboratory at Wright-Patterson Air Force Base. Its location close to the principal nitrate vaults will eliminate much of the nitrate transport that has been necessary during

past years. The safety copies will be sent to the Library for inspection and storage.

Our schedule contemplates that nitrate copying will begin at Wright-Patterson in 1980. By 1982, we hope to substantially increase our output to over 10 million feet a year. Completion of the conversion by the end of the 1980's is a realistic goal and will write an end to a difficult but rewarding adventure in archival preservation.

We thank you. My associates and I are here today to answer questions or elaborate on my remarks as best we can.

Mr. PREYER. Thank you very much.

Without objection, your full statement will be included in the record at this point.

[Mr. Curran's prepared statement follows:]

STATEMENT OF DONALD C. CURRAN, ASSOCIATE LIBRARIAN OF CONGRESS,  
BEFORE THE GOVERNMENT INFORMATION AND INDIVIDUAL RIGHTS SUBCOMMITTEE  
COMMITTEE ON GOVERNMENT OPERATIONS  
U.S. HOUSE OF REPRESENTATIVES  
June 21, 1979

Mr. Chairman and Members of the Subcommittee:

I appreciate this opportunity to appear here today to discuss the Library of Congress' program of conversion of nitrate film.

I should like to begin my testimony with a general statement about the nature of the Library of Congress' collection of motion pictures and other audio-visual materials. In 1870, when the copyright law was changed to make the Library of Congress the recipient of all items deposited for protection, the present range of the collection was confirmed. Works of graphic art, posters, photographs, maps, and other "non-book" materials were brought within the scope of the Library's holdings. Its size and encyclopedic nature made the Library of Congress the national library of the United States. The diversity and completeness of its holdings supported its governmental function and at the same time attracted scholars from outside government.

The first American motion picture came into the collections as a copyright deposit in 1894. The Library does not keep every item deposited for copyright, but selects for retention those materials it deems of permanent value either as records of events or as objects of cultural and social significance. The primary objective is to have available to researchers the record of American civilization. America is affected by other parts of the world, and our society has roots elsewhere, therefore we also collect foreign materials--but with greater selectivity than applies to materials of American origin.

Prior to 1912, the Library retained copyright deposits of motion pictures in the form of prints on paper, made from the original negatives. In 1912 the copyright law was amended to make possible the deposit of prints on motion picture film, but, since film was not considered a permanent medium, they were not retained after copyright registration. Instead the Library systematically retained scripts, story summaries, and other supporting documents of the films.

In the late 1940's, the motion picture industry began to phase out 35mm cellulose nitrate stock. The advent of safety film in 35mm made possible a more permanent collection of early motion pictures, by photographically copying the nitrate onto safety film. By 1958 the Library was receiving support for this activity from Congress, and began in a limited way to reprint the small amount of nitrate motion picture film in its possession onto permanent film stock.

With the founding of the American Film Institute, in the late 1960's, it became possible for the Library of Congress to acquire some of the nitrate films it had returned to copyright claimants during the early years when we did not keep deposited motion pictures. The AFI staff had contacts in the film industry, and were anxious to assist in the preservation of the early works of these companies. The Library received a series of grants for the preservation of films. Through gift and deposit arrangements we were able to obtain some of the most significant surviving films from the silent and early sound periods, including documentaries as well as entertainment films.

Our goal is to collect the history of the American motion picture. The fact that a certain portion of it is on nitrate stock is simply a fact with which we must cope. And the nitrate film we now accept from donors is film we were not able to accept at the time of original registration.

Thus the nitrate duplication program has the mission of salvaging a treasury of social and political history. Begun in the late 1950's, relying at first on outside laboratories, the program entered a new and vigorous phase in 1970 with the establishment of our own duplicating laboratory. In the present decade we have converted more than some 30 million feet of nitrate to safety film, adding thousands of titles to our usable collection, international in scope, and representing every decade of film history.

The laboratory has become the main force in our nitrate program. In recent years it has reached an output of 4-6 million feet per year. We intend to relocate the laboratory in 1980, and we hope to substantially increase production. We are resolved to complete our entire nitrate program during the coming decade, so that before 1990 we will neither store nor duplicate nitrate film.

We have 70 million feet of nitrate film in our vaults awaiting conversion.

The historic importance of nitrate preservation is exemplified by numerous elements in our collection. The important Theodore Roosevelt Collection, comprising some 380 titles, throws light on the earliest days

of this century. Preservation of this collection has been completed, along with a computer-based catalog which will soon be published. With the move to the James Madison Memorial Building, scholars will have informed access to this unique collection. The salvaging of another significant collection, the Kleine Collection of 456 titles from the earliest years of the film industry--fiction and documentary--has also been completed, and an index compiled. The German, Italian, Japanese, and other films that came to the Library after World War II via the Alien Property Custodian represent another major collection, whose duplication is nearing completion. It originally included 29 million feet of nitrate - fiction, documentary, and newsreel - of the 1930's and early 1940's, an extraordinary record of how a world had gravitated toward war. Of this material, 9 million feet were disposed of because of deterioration, damage, unnecessary duplication, and fragmentary nature; copying of the remainder has now been virtually completed, with the cooperation of our former adversaries. Numerous shipments of the originals have been returned to the originating countries over the years, and this is continuing. During 1979 more than 7 million feet are being shipped back to West Germany.

At present it is the American cultural heritage that is the focus of our preservation program. Every decade of film history is involved. In selecting material for preservation, we consider its physical condition, and at the same time try to fill crucial gaps in our film holdings. Through the American Film Institute and the National Endowment for the

Arts, the work is coordinated with the preservation work of the Museum of Modern Art, George Eastman House, and a few other archives, to avoid duplication of effort.

To date we have not had an accident in our nitrate preservation activities. All nitrate film is stored in specially constructed facilities in Suitland, Maryland and at Wright-Patterson Air Force Base, Dayton, Ohio. The Suitland facility includes 27 vaults, each capable of storing up to 900 cans of film. At Wright-Patterson we have 99 vaults, each capable of storing over 1000 cans. Storage is in separate walled-off vaults, each designed to isolate a fire within a single vault. The storage method has demonstrated its validity, and is used at all major nitrate collections here and abroad. Each vault is protected by sprinklers, and the temperature is maintained at 50° F., plus or minus several degrees.

Films arriving at Suitland or Wright-Patterson are inspected at once. Film showing serious deterioration is removed and destroyed. Deterioration can be clearly observed in several stages: the film becomes discolored, and grows tacky. Slight bubbles appear on the film. Then it begins to ooze a froth-like substance, and finally it turns to a rust-like powder - at which stage it is dangerous and can self-combust at about 106° F. Elimination long before this stage is, of course, essential. At both Suitland and Wright-Patterson, cans are opened twice a year and examined for deterioration. Temperature and humidity in all vaults are monitored, and sprinkler systems and fire doors are regularly inspected.

With proper storage conditions, deterioration is slow. When nitrate film is in good condition, the flash point is between 300<sup>o</sup> and 356<sup>o</sup> F.

The conversion of nitrate film is complicated. Often the first safety copy we make may be the only known copy. Therefore it should not be used as a viewing copy. Instead it serves to generate a duplicate negative from which a viewing copy can be made. Meanwhile the nitrate material must be held until the first safety copy has been carefully inspected for quality.

Work with nitrate is highly specialized. Film shrinks over the years, and our laboratory has had to develop equipment to accommodate various kinds and degrees of distortion. A few small commercial laboratories still handle nitrate, and are available for supplementary work when the problems are routine, but their quality is not always uniform, and the use of such laboratories involves shipping problems. The National Archives Laboratory has also at times assisted us, in the cooperative spirit that has marked our relations in such matters. But in general we must continue to be, as we have been in the past decade, largely dependent - increasingly dependent - on our own Library of Congress laboratory.

Until 1978 this laboratory was in the Library of Congress Building. Our plans call for reestablishing this laboratory at Wright-Patterson Air Force Base. Its location close to our principal nitrate vaults will eliminate much of the nitrate transport that has been necessary during past years. The safety copies will be sent to

the Library for inspection and storage. Our schedule contemplates that nitrate copying will begin at Wright-Patterson in 1980. By 1982 we hope to substantially increase our output to over 10 million feet per year. Completion of the conversion by the end of the 1980's is a realistic goal, that will write "the end" to a difficult but rewarding adventure in archival preservation.

Thank you. Several of my associates from the Library are with me today, and we will be pleased to answer any questions you may have.

Mr. PREYER. I certainly want to commend the Library of Congress for the work you are doing in film and film preservation. I think our ancestors will rise up to call you blessed for that. We want to make sure we keep them preserved and do not have a big bonfire of them some day by accident.

We have a vote on right now.

Mr. Kindness?

Mr. KINDNESS. Thank you very much, Mr. Chairman.

I really do not have any far-reaching questions to ask today. I had an opportunity to go over your testimony yesterday evening. But I wonder, with respect to the Wright-Patterson Air Force Base location—I have been there a number of times, but I am not familiar with the location on the base of those storage vaults.

Are they in a rather remote location?

Mr. CURRAN. Since you have been to the base and, not surprisingly, I have been there recently, too—and I was stationed there as a matter of fact—it is area B, the old Wright Field side where the museum is. It is the industrial side of the field. The old Wright Field is now closed, and they have static aircraft exhibits. It is up the hill from the flight line. The main activities on the base are in areas A and C across the highway. So, it is the industrial side where they do stress testing and have various other kinds of lab facilities and operations.

I am not an expert on the type of construction of that building, but that is its general location. The vaults are similar to those here, but, as I think has been pointed out, there are several features about the vaults which are different and represent an improvement on the vaults in Suitland.

First of all, they are double-door vaults, and there is a mechanism—a fuse link which would melt, for example, causing a mechanical weight to drop and close the door automatically.

On the other end, where the blowout panel is, the blowout is in to a concrete silo. The exhaust would go up like in a chimney. There is a grate over the top of it so that, if there were exploding cans, they presumably would drop back down into the empty silo.

Those vaults have more of the features of California vaults that were described earlier by a previous witness.

Mr. KINDNESS. They are newer in construction?

Mr. CURRAN. I am not sure of that. I simply do not know how new they are. Of course, they were designed and built for nitrate film that the Air Force had there, and they have since completed whatever nitrate work they had and emptied the vaults and now allow the Library of Congress to use the facility.

Mr. KINDNESS. Thank you.

Thank you, Mr. Chairman.

Mr. PREYER. Thank you.

There is a vote on. We would like to recess for about 10 minutes. If you could remain, I think there will be a few more questions. We will try not to keep you waiting too long.

Mr. CURRAN. We will be here.

Mr. PREYER. The subcommittee stands in recess for 10 minutes.

[Recess taken.]

Mr. PREYER. The subcommittee will come to order.

I would like to ask Mr. Barnow first—or perhaps some of the others of you would have comments on it, too. George Stevens testified

that it would cost an estimated \$15 to \$30 million to transfer all existing nitrate film to safety film. You mentioned you have 70 million feet there.

Do you agree with this estimate? Can we solve our problems if we raise \$30 million or something in that neighborhood?

Mr. BARNOW. It sounds like a good ballpark figure, but I would like Mr. Spehr to comment on that.

Mr. SPEHR. I think he was speaking specifically about the total amount of existing newsreel. If you add in the amount of feature film footage selectively, the cost might be a little higher than that. But I think it is somewhere close to a reasonable cost.

Mr. CURRAN. In our own computations for the most recent fiscal year, where we were using direct costs of labor and supplies, estimated costs were approximately 15 cents a linear foot. That does not amortize building costs or equipment costs. However, given the huge quantity of work to be done at Wright-Patterson, when we are able to start up again, a half a cent a foot would be added to that cost over, say, a 10-year period which is what we are now estimating. Obviously, other costs are going to continue to go up—labor costs, supply costs, and that sort of thing. Those are the general cost parameters we are dealing with.

Mr. PREYER. I wanted to ask you about your plans at Wright-Patterson.

Do you plan to install a film laboratory there?

Mr. CURRAN. We have the vaults now—99 vaults. It is our present intention to install a film laboratory. We are in the evaluation stage now of selecting an engineering firm. We are working closely with the base. They have identified a building on the base, which is across an open field some hundreds of yards from our present storage facility. They have made it available to us; they have reserved it for our use.

What remains to be done is to complete design and enter into a contract for construction. It is an old cinderblock building that has to be refitted for a laboratory. It is not a large facility; it does not require a huge amount of space—some few thousand square feet of space. This is just a processing lab.

They also have on the base a wet processing laboratory. There is another processing step when you are dealing with nitrate film. We have talked to them about that, and, on a reimbursable arrangement, they are willing to process the film there, so we could complete the cycle.

Mr. PREYER. When do you think it will be ready?

Mr. CURRAN. Well, depending on how long it would take to get bids and make an award—and this will be under the supervision of base construction not GSA—and finish it, I am going to guess and say 12 months, but it would be next summer. I do not think it can be any sooner than that before we could be in business.

Mr. PREYER. The Archives say they can have their transferral to safety film completed by the fall of 1980. That means they could probably get it done before you could do it.

Mr. CURRAN. Do it in our labs?

Mr. PREYER. Yes.

Mr. CURRAN. That is a possibility, of course. The Library is prepared to cooperate with the Archives as we have in the past. They have

processed film for us recently, and we are prepared to talk to them, if they want, in order to enter into a mutually satisfactory arrangement where we could process their film. Then, given that a suitable arrangement can be worked out, we stand ready to do that if they wish to do it. However, if they have other priorities, then that is essentially their business, I think.

Mr. PREYER. You outline some of the ways that your film vaults building differed from the vaults at Suitland, but I got the impression that it is not exactly a modern building and that your Suitland vaults are about as susceptible to fire. I think I am confusing your Wright-Patterson with your Suitland vaults.

Mr. CURRAN. Our Suitland building is very similar. It is in the middle of the two Archives buildings. It is of identical construction.

Mr. PREYER. Let me ask you on that: there is really nothing that distinguishes your building at Suitland from the vaults involved here; is that right?

Mr. CURRAN. I am not familiar with the vaults that the Archives uses. The building is the same construction, and the vaults appear to be the same, as far as I know.

Paul, you are more familiar with that than I am.

Mr. SPEHR. I think they are essentially identical. The only difference is the film material that is stored there and the staff that works there.

Mr. PREYER. In view of this fire in particular, have you attempted to upgrade the protection of those films?

Mr. SPEHR. We have taken some steps primarily in training our own staff, and we have made some recommendations, particularly about upgrading the sprinkler system in the Suitland vault.

After taking a careful look at the fire in A Building, we were a little happier with the conditions of our vault in Suitland. We found some evidence that the building itself, had doors all been closed, certainly would not have had widespread fire. We saw that it seemed to function the way it should.

Mr. PREYER. One of the problems we have found in the other vault, I think it is fair to say, is, knowing some of the considerable dangers that existed, there were frustrations experienced by the Archives people, for example, with the GSA Public Buildings Service.

Have you had some of those same frustrations?

Mr. CURRAN. Yes, sir.

Mr. PREYER. Could you detail a few of those for us?

Mr. SPEHR. They would be primarily in some confusion about who has responsibility for such things as coordinating relationships with the local fire authorities, and with the coordinating of designs and revisions of the safety features in the building.

Our experience in the past has been that the Public Buildings Service people have taken the initiative and carried these things out frequently without even discussing the changes in design with our staff, which we find not entirely satisfactory in a situation like this where safety is of the utmost importance.

Mr. PREYER. Yes. I think you are not dealing with groceries here, or things of that sort.

Does the staff have questions at this time?

Mr. HUTCHENS. Yes, Mr. Chairman.

Mr. Spehr, the Library has been trying to empty out B Building as much as possible and ship the nitrate film to Wright-Patterson, and the National Archives is depending on the space opening up to move some of its nitrate film which is now stored improperly on the floor into B Building.

How soon do you anticipate being able to move and clear out enough vaults so that C Building will at least not be overloaded?

Mr. SPEHR. We are presently making available two additional vaults of storage at Suitland in B Building for the National Archives. In addition, we are having to move out four vaults of film to make way for the work on the sprinkler system which the Public Buildings Service just informed us last week was taking place.

We expect to complete that work by the end of summer. We have to ship that film to Dayton, of course, and I have instructed our staff that no shipments of film will be made during the hot weather. So, we would not ship the film until the end of September anyway.

Mr. HUTCHENS. Would it have been possible for you to make space last year while the air-conditioner work was going on in A Building, so that the contractor could have cleared out four vaults at a time and proceeded with the work?

Mr. SPEHR. We have had vault space at Wright-Patterson. We have never filled the entire facility at Wright-Patterson. At the present time, it is about three-quarters full. We try to keep an allowance of empty vault space there, and Archives could certainly have used that. We had some discussions with Archives about it, but no formal approach was made, asking us for those vaults.

Mr. HUTCHENS. Was there any discussion at all last year on this point.

Mr. SPEHR. We talked informally about it from time to time, but it was not seriously broached to us as a formal proposal.

We are storing some film at Wright-Patterson for the George Eastman House which had a nitrate fire last year.

Mr. HUTCHENS. With whom did you have this discussion last year?

Mr. SPEHR. With Jim Moore.

Mr. HUTCHENS. What was the response, do you remember?

Mr. SPEHR. Well, I think they just said, "Do you have empty vaults?" We said, "Yes, we have empty vaults." They said, "If we need them, would you make them available?" I said we would have to discuss it, but I thought it was possible.

Mr. HUTCHENS. In your opinion, would it have been possible for the Archives to have cleared out four vaults at a time during the construction last fall of the air-conditioning?

Mr. SPEHR. I would hope so. I would be very unhappy about any construction work going on without moving the nitrate film.

We do cooperate with each other. We also like to keep our own areas separated reasonably well so that we are not in each other's way too much.

Mr. HUTCHENS. Mr. Bush, during September, as far back as 1971, you recommended a number of improvements for vaults in Building B. You expressed some concern for ventilating nitrate gases from the building.

What has been done to improve the ventilation in B Building?

Mr. BUSH. I think nothing.

The present air-conditioning system is self-contained in each vault. You have fan coil units for each vault without air returns so that each vault is cooled independently, and whatever atmosphere is in that vault stays there. Whatever is off-gassed into the vault stays there, except for what escapes through the scuppers. These are openings at the floor level that are placed there for the relief of water from the sprinkler system in the event of fire, or by opening the doors.

Mr. HUTCHENS. A sort of band-aid method of ventilating, would you not think?

How insistent have you or other officials of the Library been in asking the Public Buildings Service for some process of deventilation in improved air-conditioning, for example, or some more sophisticated method with which I am not familiar?

Mr. BUSH. As a result of the survey that I did in September 1971, the Library requested an engineering survey by GSA of the air-conditioning system and other considerations. That report was received in May 1973.

The engineer who made the survey confirmed my findings and noted the aging condition of the system at that time and recommended its replacement if we required maintaining humidity requirements within the 40-to-60-percent range because the present system is not capable of doing that.

They estimated the useful life of the compressors at 15 to 20 years. Of course, he was estimating the age of the system at that time to be 15 years, so it is now 21 years old.

Mr. HUTCHENS. What happened to that recommendation?

Mr. BUSH. We initiated some work orders to protect us in the interim time until they could program the funds. I think there was a bill of \$89,000 in that estimate to do the work.

Normally, our buildings manager tells me that we would expect GSA to initiate that kind of project. It was designed as a film storage unit for nitrate. It would be their responsibility to maintain it at a standard that would meet our requirements.

Mr. HUTCHENS. Do you have any idea where and when this recommendation in GSA finally ran into a brick wall?

Mr. BUSH. I do not know. All I know is that we did initiate some work orders to provide some interim measures in the way of winterizing the system so that the processing room would have air-conditioning available throughout the year, and that the system itself in our vaults would work on warm days which do occur occasionally during the winter months and during the late fall and early spring.

We also requested insulation, and I think there was one other request—the standby compressor which ultimately was used in Building A, I believe.

Mr. PREYER. Could I just interrupt to ask one question?

Mr. HUTCHENS. Surely.

Mr. PREYER. What would happen if the Government declared an energy shortage and decreed that air-conditioning units must be cut off for 4 hours a day, or something like that, this summer—especially if you have little or no ventilation in there?

Mr. BUSH. Well, if it were not more than 4 hours, I suspect we could live with it, depending on how hot the day was, and so forth.

Mr. PREYER. Well, you know Murphy's law. If anything bad can happen, it will. Bread always falls jam-side down. So, you will probably have the day when it is too hot and it goes off.

Mr. CURRAN. Mr. Chairman, I might add that that kind of survey is underway now throughout the Government, and the Library is concerned about it, not simply with regard to nitrate film which would be, I guess, our No. 1 crucial, special purpose area.

Frankly, you have the same kind of problem with books and library materials. If you let the temperature go too high, then you just increase the deterioration of paper as well.

So, we are surveying this now with the Architect of the Capitol on what is going to happen if we have to go to these kinds of things—short ration, if you will, on energy use.

I think the answer is that you have to recognize that some space has to be kept cool, and this would be one of them.

Mr. BUSH. I would think that such an energy conservation practice would be accepting a risk that would not be a good idea.

I would note the grass growing on the top of the roof over there [indicating photograph] on that building. That was designed that way—to pool the water on the roof so that you get a cooling effect by evaporation of water from that concrete slab. That is the reason for my initial answer. We could probably tolerate short periods, but I would not like to do it on a routine basis.

If we lost the air conditioner and the compressor had to be replaced, we might tolerate it on that basis.

Mr. PREYER. Incidentally, Mr. Bush, I understand you are a fire safety expert on the payroll of the Library of Congress.

Mr. BUSH. Well, sir, I am not a fire safety expert. I am the safety officer for the Library. I am a certified safety professional. You might say I am a generalist; and the fire protection engineers, and the industrial hygienists, and the health physicists are specialists.

I have had to learn a few things about fire protection since I have been with the Library of Congress because of some of the obvious hazards we have.

Mr. PREYER. Would you recognize that the Archives have a specialist who fills your role, or a particular fire safety specialist?

Mr. BUSH. I would think so; yes, sir. Even without consideration to their particular kinds of problems with storing records, I might note that section 19 of the Occupational Safety and Health Act places the responsibility on the head of each agency to provide a safe and healthful environment.

The guidelines in 29 CFR 1960 require him to have a designated safety official and that person is supposed to have—according to those guidelines—a safety professional reporting to him to manage the safety program for that agency.

Mr. PREYER. The Archives would be one agency that could use an expert like yourself.

Mr. BUSH. I might add that, governmentwide, you will find that you have at least one safety professional per 1,200 Federal employees. This is information I received some time back from the Office of Federal Agency Programs.

Mr. INGRAM. That is in every Federal agency, Mr. Bush?

Mr. BUSH. Well, you will obviously find exceptions.

You put your finger on a possible area of confusion this morning, because I suspect that Archives depends upon GSA for their professional safety support. We also heard some testimony along the lines of how the Public Buildings Service views the support they are able to give.

Mr. PREYER. Excuse me, Mr. Hutchens.

Mr. HUTCHENS. I just have one windup question, Mr. Chairman.

Would it be outrageous to say that, in two buildings out there in Suitland that do not have proper ventilation, do not have proper humidity control, have a questionable sprinkler system, have what looks like a humidifier, in fact, on the roof with the grass growing, everybody is pretty much just keeping his fingers crossed and hoping the stuff gets onto safety-base film as quickly as possible before there is another fire?

Mr. BUSH. Are you asking me?

Mr. HUTCHENS. Anyone.

Mr. SPEHR. I have worked with those vaults at Suitland for some 20 years, and they are not the world's best vaults, but they are also not the world's worst. I have gone into nitrate vaults in a number of locations, and these vaults compare very favorably with most of them, except for one or two vaults that have been built in recent years in other countries.

Ironically, the best nitrate vaults I have seen anywhere in the world are in East Germany. They are very carefully and scientifically constructed and have been built in recent years. But nobody has really been willing to invest the money in building and updating nitrate film storage facilities over recent years. Either they wanted the money to convert the film, or they just wanted to ignore the problem entirely and say, "Well, the last nitrate film was made a long time ago; it is not worth spending the money on nitrate film because it should all go away." Obviously, it does not go away.

Mr. PREYER. Mr. MORR, do you have any questions?

Mr. MORR. Yes, Mr. Chairman. I have an observation.

I think that, given enough time, it probably will. [Laughter.]

What is the total capacity of the vaults at Wright-Patterson?

Mr. CURRAN. There are 99 vaults, and you can figure roughly a million linear feet per vault. That would be packing it tight. Let us say 90 million feet.

Mr. MORR. The reason I was asking was that I wonder, if we have superior vaults and they are three-quarters full, is it possible to take all of our nitrate collection and put them in the best vaults available?

Mr. CURRAN. Yes.

Mr. MORR. The next question that follows is this. We are talking about two different Government-sponsored nitrate conversion labs. If we have vault capacity in one spot for everything we have, why not one lab?

I am curious about other possible causes of the fire out there. I have heard a number of different statements today. Largely, we are talking about spontaneous ignition versus some sort of hot-chip theory that GSA is proposing.

Mr. Bush, I am going to ask you to speculate a little, if you would, about some of the other possible causes that could have resulted in this fire. I am not sure anyone has really nailed it down, and I want to be

sure that we know that everyone has looked at all of the possibilities along the way.

Mr. BUSH. An incandescent light bulb is one possibility. If the globe was broken and the proper shielding that would prevent contact of film with the light bulbs was not there—I do not know that that was the case.

A continuing problem that one has with construction personnel is their flagrant disregard of “no smoking” requirements. I cannot dismiss the possibility that it was careless smoking. Archives has had that problem before. In 1973, at the Military Personnel Records Center, we lost the sixth floor of that building. That fire was believed to be caused by smoking.

Beyond that, I am a little at a loss. We did not have any steam pipes there, so I cannot name steam pipes, but it was either incandescent light bulbs or steam pipes in the case of the Cleveland Clinic fire in 1929.

The ignition point on your nitrate film when it is fresh is 300 degrees. If it is decomposing, it is less. The surface pressure of a 100-watt light bulb can be 300 degrees or more.

Mr. MORR. Let me ask you this. I asked this question out of the room of the gentleman who spoke earlier. Would it have been possible for a short in the extension cord between the drill and the wall to have heated up the cord and caused it, in close proximity to the film, to cause the ignition?

Mr. BUSH. I would sooner think in terms of fuel packs connected into a train of combustibles to the ignition source. In the film can, I am not so sure it would do that. But if you had film stored in cardboard boxes sitting on the floor, and this cord ignited the cardboard, then, yes.

Mr. MORR. The last question I have is this. Given what you know about the sprinklers and the air conditioning system there now, are they adequate for right now—this summer?

Mr. BUSH. No.

Mr. MORR. Thank you.

Mr. PREYER. Thank you very much, gentlemen. We appreciate your being here. I did not realize until these hearings how complicated it is to store anything. I am going home to examine my attic. [Laughter.]

If there is nothing further, the subcommittee will stand adjourned.

Once again, thank you very much for some very helpful testimony.

Mr. CURRAN. Thank you, Mr. Chairman.

[Whereupon, at 4:48 p.m., the subcommittee adjourned, to reconvene subject to the call of the Chair.]

# APPENDIXES

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## APPENDIX 1.—REPORT OF THE AD HOC COMMITTEE TO INVESTIGATE THE FIRE, DECEMBER 7, 1978, SUITLAND, MD.

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INTRODUCTION

Memorandum appointing Ad Hoc Committee

December 21, 1978

Walter V. Kallaur, Regional Administrator

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General Services Administration - Region 3

Washington, DC 20417

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Date DEC 21 1978

Reply to  
Attn of Regional Administrator

Subject Ad Hoc Committee

To Regional Commissioner PBS (3P)  
Director, Buildings Operation Division (3PO)

An Ad Hoc Committee is established to investigate the circumstances involved in the fire at Film Vault A, Suitland, Maryland on December 7, 1978.

The Committee will be chaired by Mr. William H. Hart, Accident and Fire Prevention Branch. Mr. Dario Luna, Accident and Fire Prevention Branch, Mr. Thomas E. Goonan, Accident and Fire Prevention Division, and Mr. William Murphy, Audiovisual Archives Division, will serve as members.

After fully investigating, please let me have a formal report of the Committee's findings and recommendations.

WALTER V. KALLAUR  
Regional Administrator

PART IESTABLISHMENT OF AD HOC COMMITTEE

This Ad Hoc Committee was established by Walter V. Kallaur, Regional Administrator, to investigate the cellulose nitrate motion picture film fire that occurred at Building A, on Thursday, December 7, 1978. All major firesafety aspects of nitrate film storage and handling by the National Archives and Records Service (NARS) at the Suitland location were considered, whether directly related to the fire or not. The Committee first convened at Building A on Friday, December 8, 1978. The Committee was originally established with four members and later enlarged to six members at the request of NARS and their employee representative.

PART II: ABSTRACT

At approximately 12 noon on Thursday, December 7, 1978, a film vault fire occurred in Building A, located at the Suitland Federal Center. The Prince Georges Fire Department was notified and arrived at approximately 12:15 p.m. The fire spread was throughout the building with numerous explosions occurring. The Boulevard Heights Fire Department was the first unit to arrive with approximately 12 other departments eventually participating. The fire was under control at approximately 3 p.m. Businesses and apartments in the neighborhood were evacuated to avoid the threat of toxic fumes given off by the burning nitrocellulose film. Several firemen were treated for smoke inhalation.

PART III: ESTIMATE OF LOSS

Building and equipment loss is estimated at \$131,900. Approximately 12.6 million feet of Universal Newsreel nitrate motion picture film of great historical value to the National Archives was destroyed (See Appendix A).

PART IV: BACKGROUND1. NITRATE FILM

The motion pictures destroyed in the fire consisted of nitrocellulose film, a highly flammable substance akin to guncotton and long associated with film storage fires. Nitrocellulose film contains about 12 percent nitrogen but is not itself explosive; yet the burning characteristics can resemble a low order explosion.

Nitrocellulose was first used experimentally as roll film in 1889. It was used in the first commercial motion pictures as early as 1894, and it was the principal motion picture film base used by the film industry and United States Government until 1951 when it was last manufactured in the United States. Although forms of safety acetate film had been available as early as 1909, it was not until after World War II that safety triacetate was manufactured with satisfactory physical properties for general theatrical use similar to that which nitrate film offered. Most of the motion picture film from the period 1894-1951 that is now considered valuable for artistic, historical, cultural, or other reasons was made on nitrocellulose film stock. Unfortunately, the flammability and chemical instability of nitrate film make it unsuitable as an archival record. The most feasible way to save the pictorial information recorded on nitrate film is to copy it onto safety film (triacetate or polyester), a program begun in NARS in the early 1950's.

Nitrate film's chemical instability and flammability are closely related. The inherent chemical instability of the nitrate base will eventually cause the film to decompose. This decomposition occurs in five stages: (1) discoloration; (2) tackiness; (3) softening, bubbling, and emitting a noxious odor; (4) welding into a solid mass; and (5) degenerating into acrid brown powder. Nitrate film has a lifespan of roughly 60 years under good storage conditions. It is important to note that nitrate film can decompose from one stage to another without igniting into flames. But as the film ages it becomes more susceptible to self-ignition. The flashpoint of nitrate film in good condition is somewhere between 300° and 356°F, which is still very low when compared to 600° - 700° for paper. Nitrate film in advanced stages of decomposition may have a flashpoint as low as 106°F, according to National Bureau of Standards (NBS)

tests. (See James W. Cummings, Alvic C. Hutton, et. al., "Spontaneous Ignition of Decomposing Cellulose Nitrate Film," Journal of the Society of Motion Picture and Television Engineers, March 1950.) This low flashpoint explains why the majority of nitrate film storage fires over the years have been associated with warm weather spells. To cite some recent examples, the NARS fire of August 29, 1977, and the Eastman House fire in June 1978 were preceded by several days of temperatures in the 90° range. Ever since the rash of nitrate fires in New York City in the summer of 1949, archivists have considered air-conditioning essential for the relative safe storage of nitrate film.

Nitrate film can burn with explosive intensity, but nitrate will not explode, for example, if it is dropped on the floor. In a test conducted by NBS and NARS in 1948 more than 2,500 pounds of nitrate film, placed in a vertically vented vault and ignited, burned out 100 percent in 2 minutes, 36 seconds. The maximum recorded temperature was 2,088°F and the pressure was at least 19 pounds per square inch. In similar tests conducted with sprinklers, the burnout was 37 percent for a wet pipe system and only 7 percent for a deluge type, with considerable reduction in pressure buildup. Another characteristic of nitrate fires is the emission of dangerous gases. Carbon monoxide, hydrogen, and methane are combustible; carbon monoxide and oxides of nitrogen are highly poisonous (see Robert A. Mitchell, "The 35mm Projection Positive Film," International Projectionist, Volume 25, No. 2, February 1950, page 33).

A review of NARS's storage conditions shows that the nitrate film was more or less consistently stored at 55°F, a temperature generally considered adequate for prolonging the storage life of nitrate film and minimizing the occurrence of fires due to self-combustion. The Public Buildings Service (PBS) maintenance engineers and buildings supervisor have stated that the air-conditioning was operating on the day of the fire. In addition, the outside temperature was in the mid-50 degree (F) range during the warmest part of the day (see Appendix B).

Records show that each can of nitrate film in the vault building was sight inspected by NARS staff during the week of October 23-27, 1978, and no advanced deterioration was found.

## 2. UNIVERSAL NEWSREELS

The fire of December 7, 1978, caused the loss of 12.6 million feet of primarily outtake footage. This figure represents 45 percent of the original MCA-Universal donation of 28 million feet, which included 17 million feet of nitrate and 11 million feet of safety acetate. Small consolations are that a portion of the outtake footage is usually represented in the finished film and that some comparable outtake footage can be found in other newsreel libraries. Outtakes are the unedited portions of newsreel footage not utilized in the final release version. Newsreel cameramen shot footage in excess of what was needed for the final cut. This could mean as much as 20 feet to 1, but more often than not it meant 10 to 1. Most outtakes were saved by all the major newsreel libraries, making newsreel preservation much more extensive than preserving only the theatrical releases.

In 1970 MCA-Universal Pictures, Inc. donated to NARS the Universal Newsreel Library for the period 1929-1967; included were 28 million feet of mostly negative nitrate and safety 35mm motion picture film; an extensive card catalog and microfilm copy; and selected production records. The collection was received over a 2-year period, and in 1974 MCA-Universal deeded legal custody to NARS, placing it in the public domain.

The outtake footage destroyed in the fire dated from 1930 to 1951. No outtakes were received for 1929, the first year of Universal's production. The outtake subject matter is difficult to summarize because it was as diverse as the newsreels themselves. Theatrical newsreels appeared semiweekly and covered six to 10 stories in 7 to 11 minutes of running time. A basic formula mixed international and national events with much ephemera such as sports, accidents, and beauty contests. The released issues were edited from the total footage shot and the outtakes reflect the same diversity of subjects covered. A typical issue from the 1930's might have a story on the developing crisis in European diplomacy, an excerpt of a speech by President Roosevelt, a snow storm or flood story, a new plane, a human interest story and a sports event such as a football game. While NARS copies the theatrical releases in their entirety, it selects only the more significant outtakes for conversion. Since August 1978 NARS has been disposing of nitrate film evaluated but not selected for preservation.

NARS accessioned the Universal Newsreel Library because of its historical value. NARS's interest stems from the National Archives Act of 1934 which provided for the collection of motion pictures pertaining to or illustrative of the history of the United States. As a result, NARS began collecting newsreels during the 1930's, at a time when few individuals or institutions recognized or cared about the newsreel's importance as a unique visual record of the past. The Universal donation of 1970 was the first time in American history that a major newsreel library was donated to a public archives in trust for the people of the United States. The negatives of the other major newsreels--Hearst-Metrotone, Fox-Movietone, Pathe' News, and Paramount News--still remain in commercial stock footage libraries. When MCA-Universal subsequently placed its newsreel holdings in public domain, it created a unique source of historical footage that could be reproduced for personal, educational, or commercial use without payment of royalties or license fees which, in commercial libraries, usually exceed \$10 per foot. Reproductions from the Universal library represents a significant activity of NARS's Motion Picture and Sound Recording Branch. Conversion of edited releases dated from 1929 to 1941 and from 1946 to 1948 had been completed when the fire occurred. Although several hundred nitrate outtakes in second stage deterioration had been copied earlier, preparation and conversion work on outtakes was only scheduled to begin in 1979, commensurate with the number of positions and funds available for laboratory copying.

PART VBUILDING CONSTRUCTION

Building A is one of three identical structures erected in the late 1940's for use as temporary nitrate film storage vaults. The intent at the time of construction was that these facilities would not be used longer than 3 years.

The buildings are located on an open space of ground in the north area of the Suitland Complex of Government-owned building, approximately 200 feet northwest of Federal Office Building No. 4, and approximately 150 feet from Suitland Road to the northeast. The buildings are separated by approximately 50 feet of clear space end to end. A 6-foot high chain link fence surrounds the structures.

Building A is a one-story structure of fire resistive construction with 8-inch thick concrete block walls and reinforced concrete slab floor and roof. The building measures approximately 100 feet by 40 feet and has a 6-foot, 2-inch central corridor running from one end to the other.

An office area and a workroom are located on each side of the corridor towards the front of the building. Twenty-seven individual film vaults occupy the rest of the space, 13 on one side of the corridor and 14 on the other.

Each vault measures approximately 15 feet, 9 inches by 5 feet, 4 inches by 7 feet, 9 inches high and is enclosed by 8-inch thick concrete block walls of slab to slab construction. Access to each vault is by means of a shop-fabricated, 3/16-inch thick single-leaf swinging steel door. The doors open onto the corridor, are of the manual closing type and provided with bolt locks.

Each vault is provided with 11-inch deep metal shelving extending from floor to ceiling and from end to end, along two side walls for storage of the films.

PART VI: FIRE PROTECTION

In order to retard the decomposition rate of nitrate film, the building has been provided with a central freon system with individual cooling units suspended from the roof of each vault. Temperature in each room is maintained between 55°F and 60°F, within the acceptable range for temporary storage of cellulose nitrate motion picture film. Some authorities recommend 40 F and 50 percent relative humidity for archival storage (see Ralph Sargent, Preserving the Moving Image, 1973).

Although primarily installed for film preservation purposes, the air-conditioning system may also be considered as part of the protection since it inhibits the formation of hazardous quantities of the gaseous products of decomposing nitrate film. Each vault is equipped with a thermometer for monitoring storage conditions.

The 4-inch concrete slab roof is constructed to accommodate 1 inch of water at all times to help insulate the building interior from sun rays. Additionally, the underside of the roof has been insulated and a 4 feet overhang extends around the building perimeter to prevent sun rays from reaching the exterior walls.

The vaults are not provided with decomposition vents. Each vault, however, is equipped with an individual horizontal explosion vent measuring approximately 51 inches by 38 inches, an adequate size based on the standard requirement of 1 square foot for each 50 cubic feet of vault volume. These vents are located on the outer wall at the end of the vaults and covered with cement asbestos board blowout panels held in place by caulking compound and metal clips on the inside. These vent panels are designed to blow outward and release the internal pressure at less than approximately 35 pounds per square foot.

Electrical installation in each storage vault complies with provisions of the National Electrical Code. Each vault is provided with a fixed, ceiling-mounted incandescent electric light bulb that has a vapor-proof, screw type cover. There are no electric switches in the storage areas.

Sprinkler waterflow and valve tamper alarms are transmitted to an annunciator panel in the guards office in FOB 3.

In November 1970 Universal Pictures entered into an agreement with

the National Archives and Records Service to transfer approximately 28 million feet of newsreel motion picture film to the National Archives. Along with the gift of film, Universal Pictures provided for the design and installation of a complete fire protection system for nitrate film storage in Building A. The installation of a sprinkler system was started late in 1973 and was completed in 1974.

In order to improve existing storage conditions in the vaults in terms of better temperature control and regulation of relative humidity, a contract for upgrading the air-conditioning systems in Buildings A and C was initiated in the summer of 1978. The work included the lowering of the automatic sprinkler piping in order to accommodate the new fan coil unit and new ceiling insulation.

The work in the two buildings was conducted intermittently until sometime in September when the contractor stopped all operations. The contractor returned to the job for the first time on the morning of the fire.

Inspection of Building A the day after the fire revealed that the automatic sprinkler protection for the vaults had been altered and the level of protection had been reduced. A 4-foot length of branch line containing two sprinkler heads had been removed and the line plugged thereby compromising the ability of the system to extinguish a fire effectively. (See photograph number 1.) This was apparently done by the contractor sometime before he stopped working in September. It was intended that the fire suppression system be a "high-speed deluge system." As installed, it was actually a standard automatic sprinkler system. Essential components necessary to make the system operate as originally intended were lacking. Deluge system accessories and trim served no purpose the way the installation had been made. As stated previously, wet pipe sprinklers will control a film vault fire, but deluge sprinklers will do so with much less film damage. The distribution of sprinklers in the vaults as designed is adequate based on the standard requirement of one head per 120 cubic feet of volume. Six sprinklers were originally installed in each vault.

The Committee conducted water supply tests at the storage vaults to determine its adequacy for fire protection and the results

indicate that the water supply exceeds the minimum requirement for cellulose nitrate film protection (see Appendix C). National Fire Protection Association (NFPA) No. 40, Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film, requires that water supplies for automatic sprinklers shall be based on 20 gpm per sprinkler for the total number of sprinklers in one vault, plus 25 percent of the number of sprinklers in the communicating fire area. Applied to this particular building, the standard requires a water supply for the equivalent of two vaults.

Based on the above tests, calculations indicate that there is enough volume and pressure in the water mains to adequately supply the minimum requirement for the vaults (see Appendix D). The piping layout of the degraded system (two sprinkler heads removed from each vault) was programmed into a computer to determine the behavior of the system during the initial stages of the fire. With no water flowing in vaults numbers 15 through 20 (the vaults that sustained minimal damage), the minimum sprinkler discharge of 20 gpm per head was provided in vaults numbers 9 through 14 in addition to four corridor sprinklers, a total of 28 heads. As the fire eventually involved 21 vaults as well as the rest of the corridor and work areas, the efficiency of the suppression system gradually declined. This explains why no water flowed out of several sprinkler heads.

The waterflow alarm, installed in early 1978, was improperly connected and did not work.

PART VIIBUILDING MODIFICATIONS

As a result of the 1977 fire in Building C, Public Buildings Service (PBS) issued work contracts to install sprinklers in Buildings B and C, to upgrade air-conditioning and to provide humidity control in Buildings A and C, and other safety features.

The sprinkler system installed in Building A in 1973 under the auspices of Universal Pictures was duplicated in Buildings B and C. Although the unit in Building A was intended as a deluge system operating independently in each film vault, actual design and installation were such that all vaults were combined in a wet pipe, sealed head sprinkler system. Most of the equipment necessary for deluge operation was installed, lacking only a shutoff valve and associated ball drip and check for each vault. A deluge system operates much faster than wet pipe sprinklers in case of fire and results in less damage, although either will control a fire. Sprinklers for Buildings B and C are designed similarly, with the same deficiencies. Control valve and other components should have been provided in each vault with open heads for deluge operation.

At the time of the 1977, fire, the vault cooling system was in poor condition, unreliable, nearing the end of its service life, and lacked humidity control desired for nitrate film preservation. A contract was let to replace the freon cooling system with a chilled water reheat air-conditioning and humidity control system which included new vault lighting and perimeter insulation. Several problems developed. The fan coil intended to replace the existing unit was too large to install above the doorway, the position of the existing unit. PBS issued a change order (see Appendix H) authorizing the relocation of the new, larger fan coil unit and lowering of the sprinkler lines to accommodate the unit and thicker roof insulation. In preparation for the installation of the fan coil unit, the contractor removed two sprinklers from the line in each vault with the verbal consent of the PBS contract supervisor. This alteration was made months prior to the fire. Accident and Fire Prevention - Construction and Alteration Work, GSA Handbook PBS P 5900.3, states in chapter 9, paragraph 3b that "Contractors shall not shut down,

shut off, disconnect, block, or otherwise impair any fire protection sprinkler system, fire hydrant, fire alarm system, special extinguishing, or other installed fire protection system without prior authority in writing from the Government representative. . . . . " In addition, the contract had been held up for months because the system requires more electric power than estimated. The contract did not sufficiently restrict hazardous operations in the film vaults. Temporary nitrate storage space not being available elsewhere, the contract limited work in the vaults to four at a time to permit insulating, plastering, and hazardous activities. The contractor understood that no hot work was permitted in the building. It is not clear that the hazard of using electric tools in occupied film vaults was understood by the contractor or the GSA contract supervisor (see Appendix E). Accordingly, the contractor did not hesitate to use an open armature electric drill in occupied film vaults.

PART VIIIBUILDING OPERATION

The National Archives and Records Service utilizes Buildings A and C of the Suitland nitrate vault complex to store and prepare for reproduction cellulose nitrate motion picture film. The vault complex, including Building B which houses nitrate film held by the Library of Congress, is surrounded by a security fence, and access is restricted during nonbusiness hours with gates which are opened by a Federal Protective Service officer each Monday through Friday at 6 a. m. and locked at 4:45 p. m. each evening. Working hours for the four NARS film inspectors are from 8 a. m. to 4:30 p. m.

A register of persons entering and leaving Buildings A and C is maintained at the entrances to these buildings. Copies of the pages surviving from the Building A register are in Appendix F.

The mission of the NARS staff is to store, preserve, inspect, and prepare for duplication the nitrate motion picture film held by NARS. The staff regularly removes cans of film from vault storage, inspects the film, splices film segments together and performs other activities in the workroom and vault areas. These activities are required before the film can be converted to safety film for preservation or duplication in response to researcher requests. Established procedures require that when anyone is working in a vault, the vault door is to be kept open and the fire door leading to the vault area is to be kept open. The doors are to be closed at all other times. Other procedures governing the safe handling of nitrate film and operations of the vaults are found in a memorandum dated October 17, 1977, included as Appendix G.

In accordance with this memorandum temperature readings are taken in each vault each workday when the outside temperature is above 55<sup>o</sup>(F). A sample of the readings for the vaults in Building A is found in Appendix I.

On the morning of December 7, 1978, the first NARS employee arrived at 8 a. m. Upon his arrival he noticed that two workmen of the Edward Kocharian Company were in the complex waiting for

Building A to be opened so they could begin work. The contractor's men indicated that they would be installing anchors in the vaults. Earlier in the year when the contractor was working on a regular basis, arrangements were made so that a NARS staff member would arrive at 7 a. m. to permit the contract workers to begin work in accord with the hours specified in the contract. Because the contractor had not performed any work in Building A since September, and having no indication that the workmen would be returning, NARS personnel reverted to their regular schedule. No NARS employee received a notification prior to December 7, 1978, that contractor work was to be performed in Building A that day.

The vault staff went about its assigned duties on the morning of the fire. Most of these activities were centered in the workroom and office areas at the front of the building. On at least three occasions NARS employees entered vaults to remove film associated with the performance of their work. Specifically, they entered vaults 1, 2 and 26, adjacent to the office. At no time did NARS employees enter any of the vaults in which the workmen were drilling and installing anchors, nor did they go to the far end of the building where the contractor's personnel were working. The staff indicated that the temperatures in vaults 1, 2 and 26 were normal on the morning of December 7.

When the NARS supervisor arrived at about 10:15 a. m., she noticed that the contractor's workmen were in the building and that the door to the corridor was open. She noticed that some vault doors on the right side of the building were open in the vicinity of vaults 9 through 14, and that an electric cord was stretched down the corridor coming from one of the open vaults. The cord was connected to a plug at the rear of the building near the exit door. She observed a good deal of dust in the corridor and told Mr. Bud Thorn of the Kocharian Company to open the exit door at the rear of the building to let the dust out. He opened the door, which remained open throughout the fire.

#### DISCOVERY OF FIRE

Sometime between 11:30 a. m. and 11:45 a. m. the workmen went to the office to eat lunch. The NARS supervisor and another

NARS employee who had been working in Building C joined the contractor's men in the office at about 12 o'clock. The other NARS staff members had left the complex at about 11:15 a.m. to take film to the National Archives Building. The group began their lunch and after a short time, about 5 minutes, they heard a noise which they described variously as a loud "thump" or a "whoosh." Someone joked that the NARS supervisor's car had been hit. She got up, opened the office door and looked down the corridor. She saw "black smoke with an orangeish haze" coming from an open vault. She turned to the office, yelled "Fire!" and rushed out of the building to her car and drove to the Federal Protective Service (FPS) office in Federal Office Building No. 3 to give the alarm. The workmen and the remaining NARS employee, who closed the fire door to the vault area, left the building. The NARS staffer ran to Building B to call in the fire alarm, and he then proceeded to Building C to place another call to report the fire. He returned to Building A parking area near the exit gate on the east side of the complex as the first fire unit arrived. He told one of the firefighters that there was a nitrate fire and that there was no one in the building.

PART IX: FIRE SPREAD

A fire which occurred on August 29, 1977, in vault 13, Building C, was confined to vault 13 and did not destroy or damage film in other vaults. There were several differences between that fire and the fire under investigation.

In the 1977 fire, the vault contained film identified as dangerously decomposed. The weather was hot and humid and had been in the 90's for several days. A malfunctioning air-conditioning system allowed abnormally high temperatures in vault 13. The first sign of fire was an explosion vent being blown out and flames projecting 60 feet horizontally from the vent. The building was locked and all vault doors were closed. There was no sprinkler system. By the time the fire department arrived, the contents of vault 13 were consumed, and the fire department extinguished residual spot fires and cooled down vault 12, which had been heated by the fire.

In contrast, the December 7, 1978, fire occurred on a cool day in a vault which may have had the door open. The contractor employees opened 10 vaults but had closed five vaults and perhaps nine. Building occupants are required to leave the door open while working in a vault, for safety reasons. All vaults were sprinklered but sprinkler effectiveness was reduced by the contractor's alteration. When the fire department arrived, the fire involved a single vault, all blowout panels were in place, and the fire appeared to be burning under sprinkler control. Smoke was seeping out all around the building and rising from the open door at the west end. The firemen opened seven or more vault doors and began knocking out blowout panels to "ventilate" the building. An explosion ensued in the burning vault and the corridor which injured firefighters, displaced a fire partition (see picture number 4) and door in the corridor, damaged the corridor wall (see picture number 5), blew out the vault blowout panel, and permitted the fire to spread to other vaults. The explosion probably resulted from the mixing of fire gases with air and igniting of the resulting mixture. In firefighting terminology this is known as a "backdraft" explosion. From that point on, the fire progressed from vault to vault through open explosion vents or open doors until 21 of the 27 vaults were involved. After the first explosion, the fire department did

not reenter the building until the fire had burned out. They then performed overhaul activities, extinguishing remaining spot fires and cooling the remains.

To summarize, in the 1977 fire, conditions were favorable to fire spread except that the building was tightly compartmented until the fire was out. In the 1978 fire, conditions were favorable for a limited fire, except that compartmentation was compromised by contractor operations and fire department operations.

PART XFIREFIGHTING ACTIVITIES

An interview of firefighting officers took place on January 3, 1979, in the presence of the Prince Georges County Fire Department attorney. Most questions on firefighting activities were deferred. The attorney stated that a formal report on firefighting activities at the December 7 Suitland fire had not yet been made.

This account of events was constructed from observations made on the fire ground, interviews of observers, and discussions with firefighters at the fire scene:

Boulevard Heights Engine Company Number 17 arrived first, set up at the east end of Building A, and the men advanced a handline down the corridor. The company checked seven vaults in the end of the building away from the fire. Automatic sprinklers were operating but water was not pumped into the siamese connection by the fire department. A second company working from the west end of the building broke out blowout panels on the north side for ventilation. A third company was preparing to advance a second line into the east end. The officer in charge, upon becoming aware that a nitrate fire was in progress, ordered the men out of the building immediately. While they were withdrawing, the backdraft explosion knocked the men down, causing injuries and knocked back the crew entering. No further internal firefighting activities were attempted. Additional units and ambulances were immediately called.

Equipment consisting of engines, trucks, squad, and ambulances were furnished from Boulevard Heights, Silver Hill, District Heights, Hillside, Morningside, Capitol Heights, Forestville, Oxon Hill, Clinton, Seat Pleasant, Tuxedo-Cheverly, Laurel, and Andrews Air Force Base. Fifteen men were treated for smoke inhalation including two for burns.

PART XI: CAUSE

The cause of the fire has not been determined. Fire cause was probably linked to construction activities initiated to upgrade the temperature control and to provide humidity control. Prior to the day of the fire, all contract work within Building A and Building C was done using hand powered tools. All work involving power tools, welding, cutting, soldering, and other hazardous operations was done outside the building. Fabricated sections were brought in and assembled with wrenches and threaded connections. The only work done within the film vaults was that the contractor removed two sprinkler heads from the six-head line in each of the 27 film vaults in Building A and lowered the remaining sprinkler piping in preparation for replacing ceiling insulation and refrigeration fan coil units. This work took place from 3 to 4 months prior to the fire.

On the day of the fire, two contract workmen brought in an open armature electric drill and proceeded to bore four holes in the reinforced concrete roof of each vault, starting at the west end of Building A. Anchor bolts were installed until the supply was exhausted; then the workmen continued to drill holes without installing anchor bolts. Prior to the fire, holes were drilled in the roofs of vaults 15, 14, 16, 13, 17, 12, 18, 11, 19 and 10 approximately in that order. At that point the workmen stopped for lunch. During lunch, fire was discovered in one of the vaults in the northwest area of Building A, probably in vault 10 but possibly in vault 11 or 12. None of the observers interviewed were nearer than 50 feet from the fire, and no one was able to identify the exact vault first involved. All observers agreed on the general area where the fire first occurred.

The open armature drill (see photo number 2) used will ignite flammable vapors, should any be present, because of internal contacts which spark while operating. There is no indication that this occurred. The drill motor heats up under use and if laid on a can of film might provide enough residual heat to raise the film to self-ignition temperature. The drill bit heats up considerably more than the motor and is also a source of heat. The concrete roof contains steel reinforcing bars, and red-hot steel chips can be produced by the drill bit. Although

red-hot steel chips are not often produced, and they hold their heat only briefly, a red-hot chip falling into a kraft film box could ignite a smouldering fire which could result in a film fire. Photographs made after the fire show burned debris under the drill on the top step of the stool where the drill was left in vault 10 (see photo number 3). The debris, not collected for analysis, may be remains of cardboard heated to ignition by the drill housing during lunchtime. The drill power cord may have been damaged and provided an ignition source for film or cardboard boxes containing film. Smoking, although strictly prohibited in the vault area, has not been eliminated as a possible cause of the fire.

Arson, although possible, is highly unlikely. Three people are known to have been in the fire area prior to the fire: Edward Kocharian, the contractor, and his two employees, Bud Thorn and John McCoy. None had any obvious reason to start a fire deliberately. An outsider, to gain access, would be observable by three separate work groups. The area is completely fenced, with a single unlocked gate, and the location where the fire started is farthest from the gate. As the area is dead-ended, the only traffic in the enclosure is related to film storage, and strangers would have been noticed. No unidentified persons were seen in the area the morning of the fire.

Other investigators have advanced a theory that the fire was caused by spontaneous ignition of nitrate film. This is unlikely, as none of the conditions favorable to spontaneous ignition were present. Badly deteriorated film can spontaneously ignite at relatively low temperatures (106°F). All film in Building A was visually inspected in late October 1978, approximately 5 weeks prior to the fire. Film is only unwound when sight inspection reveals signs of deterioration. At that time, about 20 cans of film were found to be in the second stage of deterioration (tackiness) and put aside in vault 3, some distance from the origin of the fire, for priority conversion. Weather conditions were favorable for film storage, with temperatures of 55°F and below for 3 weeks prior to the fire. Outdoor temperature at the time of the fire was 55°F (see Appendix A). The 1977 Ad Hoc Committee recommended a maximum temperature of 55°F in the film vault.

There was no internal heating in the film vault area, as the corridor heating system had been removed by the contractor some months prior to the fire. There is no heat provided for the individual vaults. The minimal heat required is provided by leakage from the central corridor.

A theory was advanced that vaults were overheated by a malfunctioning refrigeration system somehow causing conditions favorable for spontaneous ignition. The system in use employs freon cooled to outside temperature so the system output was probably no higher than 55° F, the outside temperature at the time of the fire.

The fire was most likely caused accidentally as a result of activities associated with upgrading the air-conditioning system.

PART XII: RECOMMENDATIONS

The following recommendations are proposed to lessen the chance of recurrence of a nitrate fire:

A. BUILDINGS MANAGEMENT OPERATIONS

Perform preventive maintenance by group forces or contract for all mechanical and electrical equipment associated with film storage and handling.

B. CONSTRUCTION MANAGEMENT DIVISION

1. Submit all contracts affecting NARS facilities for review by NARS officials and Accident and Fire Prevention Branch prior to the request for bids. The unique requirements posed by archival storage systems make it essential that NARS exercises direct review over the nature of the construction, renovation, upgrading, and maintenance of facilities used to store the Archives of the United States. Change orders must be handled in the same way.

2. Accelerate the work necessary to upgrade the remaining storage facilities for nitrate film at Suitland so that all air-conditioning, safety, and fire protection systems operate properly.

3. Perform all work within a vault other than film handling only after all of the film has been removed from the vault.

C. OCCUPYING AGENCY'S PROCEDURES

1. Provide funds to copy all remaining nitrate film determined to have enduring value so that the copying progresses at a rate that will make it possible to complete the NARS nitrate conversion program within a maximum of 2 years. Dispose of all nitrate film following evaluation or copying.

2. Store film on shelves only and not within 12 inches from the roof. Store no film on the floors of the vaults.

3. Prohibit the storage of supplies in cardboard boxes within the vaults as mandated in the safety procedures dated October 17, 1977.

4. Enlist the cooperation of Prince Georges County Fire Department for prefire planning and in-company inspection activities.

5. Vent film cans to allow decomposition gases to escape. A quarter inch hole punched in the bottom is adequate.

6. Record temperature and humidity of each vault daily.

7. To avoid blocking sprinkler coverage, vertical storage of film cans between horizontal stacks is not permitted.

8. Examine firesafety aspects for nitrate film storage and handling at all facilities using the services of the Accident and Fire Prevention Division, General Services Administration.

#### D. REPAIR AND ALTERATIONS

1. Accomplish the following items under the existing contract:

a. Provide a sprinkler control valve for each vault, replace sprinkler heads with open sprinklers, and convert the present wet pipe sprinkler system to a series of open-head deluge sprinkler systems, one for each film vault. (Present equipment includes deluge valve and fire detector in each film vault.)

b. Arrange alternate deluge sprinklers in each vault to be cocked 30° off horizontal to the left and 30° to the right to throw sprinkler water on the ceiling.

c. Connect waterflow alarms and supervisory alarms to the Regional Control Center.

d. Improve the latch system on the present vault doors for ease of operation and positive latching.

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2. Do not postpone the Repair and Alteration Work Item project scheduled for the following buildings beyond the present construction plan year.

a. Building B (MD0038AG)

(1) Replace existing roof (same as Building A Work Item (WI) 0009 scheduled for FY 1979).

b. Building C (MD0039AG)

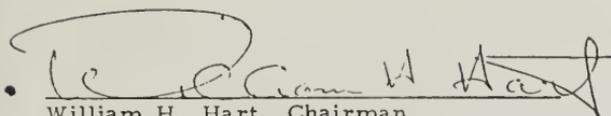
(1) WI 0007 "Replace Roof," 2,500 scheduled for FY 1980.

3. Provide new repair and alteration work items for the following and schedule for immediate accomplishment:

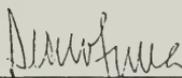
a. Buildings B and C (MD0038AG and MD0039AG)

Install a gas-monitoring analyzer to detect NO<sub>2</sub> at 2,500 parts per million and remote alarm to FOB 3, Federal Protective Service office and the Regional Control Center. Recorder for all readings should be installed at the film vault building.

b. Provide a manual fire alarm box at each of Buildings A, B and C and at the entrance gate. Connect the alarm to the Regional Control Center.



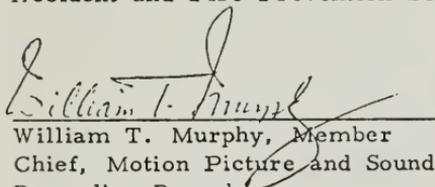
William H. Hart, Chairman  
Supervisory Safety Specialist  
Accident and Fire Prevention Branch



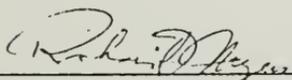
Dario L. Luna, Member  
General Engineer (Fire Protection)  
Accident and Fire Prevention Branch



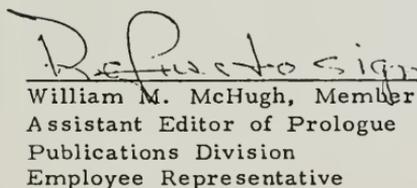
Thomas E. Goonan, Member  
Firesafety Engineer  
Accident and Fire Prevention Division



William T. Murphy, Member  
Chief, Motion Picture and Sound  
Recording Branch  
Audiovisual Archives Division



Richard F. Myers, Member  
Deputy Director  
Audiovisual Archives Division



William M. McHugh, Member  
Assistant Editor of Prologue  
Publications Division  
Employee Representative

*Refuse to sign. A minority report  
will be submitted  
under separate cover.  
with that*

16 February 1979  
Date

MINORITY REPORT  
ON THE  
NITRATE FILM FIRE OF  
DECEMBER 7, 1978  
AT SUTLAND, MD.

## I. Introduction

### Accessioning and retention policies:

In 1970 the National Archives accessioned its large Universal Newsreel nitrate film collection ostensibly under the authority of the Historical Records Act of 1934. However, in 1950 that act was superseded by a new law which more narrowly defined the agency's authority to accept motion picture film, thus bringing that material into conformity with other types of records. The language of the law permits the agency to accept for deposit "documents, including motion picture films . . . that are appropriate for preservation by the Government as evidence of its organization, functions, policies, decisions, procedures, and transactions."

Most of the material in this collection fails to meet that test. This film is predominantly outtakes or discarded and unused parts of film that did not appear in the final print released to movie houses. A great deal of the material is trivia which is not of the archival quality that would warrant permanent preservation as evidence of the functions of government. Yet this material which presents a constant and unnecessary hazard to employees, the public, and other more valuable records, has never been systematically evaluated to see which of it could safely be disposed of. According to William T. Murphy, chief of the Motion and Sound Recording Branch, the collection contains "much ephemera." Of six subjects treated on a typical reel, four fall into that category. Subjects such as "Confetti Fight at Harvard," "Auto Racers Thrill Crowds," "Kid Cowboys' School Doomed," or "Meet the Allisons--Oda to Ozar," would not seem to have archival value, but such subjects exist on individual reels in the thousands. Mr. Murphy stated that present plans (February 1979) call for converting 80 percent of the existing material to safety film.

## II. Observations

### Lack of firesafety at the National Archives film laboratory:

When nitrate motion picture film is to be reproduced, it is retrieved from storage at the Suitland film vaults and sent to the photo laboratory at the National Archives main building on Pennsylvania Avenue at Eighth Street, NW, Washington, DC. The agency's laboratory is in the basement of the building and is adjacent to a snack bar and a lunchroom that seats about seventy-five people. The exit from the lab opens into a public elevator lobby used by tour groups visiting the agency, sometimes including large numbers of school children, as well as by researchers and employees.

Though the lab operates in the main agency building where some of its most valuable records are kept and the largest number of its employees work, it is seriously substandard from a firesafety standpoint. Minimum standards of the National Fire Protection Association even for a nonarchival building require that areas where hazardous material such as nitrate film is processed be equipped with a quick-acting deluge sprinkler system. The film laboratory does not have such a system. There are not the approved number of exits, doors do not open in the direction of travel, nor do they have the panic hardware that would permit rapid, unimpeded exit. Smoke detectors are lacking and there are no illuminated signs marking the exit from the laboratory.

Employees state that temperatures in the laboratory have frequently been in the mid-eighties, and some rooms have poor ventilation or no ventilation whatever. No special instructions have been given to employees as to what to do in event of a nitrate film fire.

Reportedly as a result of the second film fire at the Suitland film vaults within a sixteen-month period, the Library of Congress has restricted the entry of nitrate film into its main building because of the hazard involved. Yet the National Archives is now permitting film from that agency to be processed in its lab in spite of the urgent necessity that it get its house in order and eliminate an unnecessary hazard of its own.

The agency's relative lack of attention to safety concerns may be explained in part by the statement made to the fire investigating committee by Mr. James Gear, director of the National Archives Preservation Services Division, that "self-combustion doesn't occur in nitrate film." The agency's handling and storage practices appear to be consistent with that statement.

This categorical statement is puzzling when one considers that Mr. Gear sat on the committee that investigated the August 1977 film fire at Suitland, which concluded that the fire resulted from spontaneous combustion of nitrate film stored at temperatures that were too high. There is also a substantial body of literature, some of it published and cited in a quarterly journal, American Archivist, produced at the National Archives, that addresses the propensity of nitrate film to ignite spontaneously.

- III. Conditions that may have contributed to a fire from spontaneous combustion in the Suitland film vaults:

Aging nitrate film. The useful life of nitrate film is estimated to be fifty to sixty years under good conditions of storage. Some of the film in this collection was released in 1930,

which indicates that it may have been manufactured even earlier and was at or near the end of its expected life. Once such film begins to deteriorate, it does so at an accelerating rate, especially under adverse storage conditions. The quality of the film at the time of manufacture also affects the rate at which it will deteriorate. Film manufactured during the World War II period, when certain chemicals were in short supply, is more likely to deteriorate prematurely. Some of this film came from that period.

Another factor contributing significantly to deterioration is the presence of hypo or residual chemicals used in the processing of the film. It is quite common to find such chemicals on film that has not been thoroughly washed after processing. This collection was not tested to see if such chemicals were present. Testing for hypo is a standard archival practice.

Adverse conditions of storage. Humidity in the film vaults at Suitland is not controlled. Many archivists are of the opinion that excess humidity is a greater cause of film deterioration than is warm weather. Some vaults at Suitland have relative humidities in the mid-seventies and eighties. The work under way at the time of the fire would have remedied this, but much of the film has already been subjected to this condition for six to eight years since it was donated. Without humidity control, cooling will frequently raise the relative humidity.

One of the factors contributing to the August 1977 fire at the Suitland vaults was a malfunctioning air-cooling system. Although repairs have been made, the system has continued to present problems and has not functioned effectively. More extensive repairs were not made recently because a new system was being installed. Leaks in the system have required that GSA engineers add coolant to the system when employees noticed that the coolant pipes were warm. For the two months before the fire, a period that was unseasonably warm, GSA engineers added coolant an average of three times per week. Thus the film was subjected to continual cycling between warm and cool temperatures as the system lost coolant and it was replaced. Such cycling also accelerates deterioration. Coolant was last added to the system five days before the fire.

Another factor contributing to the film deterioration is the accumulation of oxides of nitrogen caused by the breakdown of the chemicals in the film base. Since there is no means to introduce fresh air into the vaults regularly, escaping gases from decomposing film are circulated throughout the vault where they may attack other film, causing image loss and further deterioration. At present the only means by which air in the vaults is exchanged is by the air movement caused

from occasional opening or closing of vault doors when film is stored or retrieved.

Inadequate film inspection and testing. One of the large commercial film manufacturers (whose concerns are not primarily archival) recommends that nitrate film be carefully examined throughout its length for signs of deterioration when it is received. Such an inspection of the Universal Newsreels had not been done since the time of their donation six to eight years ago, presumably because of a lack of staff. So-called sight inspection of the film was done six to seven weeks before the fire. This consisted of opening cans of film and looking for obvious deterioration without unwinding the film. Some 5.7 million feet per day was "inspected" in what would scarcely be called a professional manner. Twenty cans of seriously deteriorating film were found and removed from vaults 9 or 10, the same area the fire is thought to have started in. Given the age and storage conditions of this film, it is likely that additional deterioration would have been found had the film been unwound and properly inspected.

The alizarine-red heat test is an accepted method of determining the age of nitrate film and therefore the point at which it is likely to deteriorate. Based on such tests the agency could have instituted a program of more frequent inspection for nitrate film that was approaching the point at which it might ignite spontaneously.

Air-cooling units shut off. Each film vault has a separate control for its fan-coil cooling unit. When the contractor's men entered a vault to install anchors in the ceiling to hold the new air-conditioning units, it was necessary to shut off the cooling unit so it would not blow the dust into their faces. Drilling into the reinforced concrete ceiling created heavy dust in the vaults being worked on and in the adjacent hallway. The cooling units would have been off one to four hours before the fire.

Unshielded light bulbs. While working in the relatively confined space of the vaults (vault aisles are three feet wide), the contractor's workmen continually broke light globes, leaving some vaults with unshielded 200-watt light bulbs. This would create a layer of hot air near the ceiling, which may have provided heat for spontaneous combustion of film stacked near the ceiling when added to the heat load from other sources.

Heat-producing drill. The heavy-duty drill used to make anchor holes in the reinforced concrete ceiling was blowing hot air within ten inches of the cans of nitrate film stacked close to the ceiling. Heat from drill tip as well as the motor added to the heat load near the ceiling.

Body heat from the workmen. Agency employees stated that the workmen complained frequently that the arduous work of drilling overhead into the steel-reinforced concrete ceiling gave them back and neck strains. The workmen also found the vaults unusually warm the day of the fire and were able to work without their jackets on. Their body heat contributed to the heat load in the vaults.

#### IV. Factors affecting the severity of the fire at Suitland:

Contractor operations that reduced the effectiveness of the existing sprinkler system, lack of a deluge sprinkler system, and failure to pump water into the siamese connection have been addressed as contributing to the severity of the fire.

An eyewitness reported that firemen knocked out four pressure-relief (blowout) panels on one end of the north side of the building; the rest blew of their own accord from internal pressure. The fire took about one-half hour to work its way from one end of the building to the other. The rate of spread would be consistent with gradual heating of the uninsulated iron vault doors and eventual combustion of the contents within. Had the doors been approved self-closing fire doors, it is likely that the fire would have not spread beyond the vault it started in.

The first explosion occurred a few minutes after the firemen knocked out the four pressure relief panels on the north side of the building. Some have assumed that opening these panels created a backdraft that fed the fire and caused the explosions. Since secondary explosions are characteristic of burning nitrate, it is not clear that opening the panels was the cause of a backdraft and the subsequent explosions. There was a door already open to the outside within twenty feet of the burning vault or vaults. Thus it is not clear that this part of the firemen's work intensified the fire.

Another contributing cause of the severity of the fire was that most of the vaults appear to have been badly overloaded because of a lack of storage space. Fire photos show some vaults with most of the cans in place on the shelves, yet burned cans are piled deep on the floor. It was and is a common practice to pile cans three to four feet high in the middle of the floor. Some vaults appear to have contained two to three times the amount of film they were rated for.

#### V. Miscellaneous:

Lack of technology. Four to five thousand reels of nitrate film that was duplicated for the Center for Cartographic and Architectural Archives was found to be out of focus, improperly exposed, or incomplete due to technical difficulties, which requires that it must be redone. Thus a large amount of hazardous nitrate film that might have been disposed of, must now be kept until new copies can be made. More up-to-date cameras have been purchased which are

expected to eliminate most of these difficulties. Recopying the film will take an estimated one to three years.

#### VI. Conclusion:

It is probable that the December 1978 fire at the Suitland film vaults was caused by conditions rather similar to those that caused the August 1977 fire, i.e., deteriorating film being subjected to temperatures that were too warm. In the second instance, however, spontaneous combustion was likely precipitated by heat-producing activities of the workmen who were installing a new air-conditioning system.

#### VII. Recommendations:

Because the nitrate film reproduction and handling facilities in the National Archives building are well below the minimum standards for fire and lifesafety (cf. chapter 40 of the National Fire Protection Association standards), nitrate film should be banned from the National Archives building forthwith. The existing sprinkler system in the National Archives film lab has been badly compromised by building modifications done after the system was installed. The agency is unlikely to install a deluge system and approved exits that meet the minimum standards for handling nitrate film because of the expense involved. For lifesafety reasons, then, if not for protection of agency records, other duplication facilities should be set up. It may be possible to refurbish the burned out building at Suitland and use it for that purpose.

Employees should be given instruction in what to do to protect themselves in the event of a nitrate fire in the National Archives facilities. Also, the exit nearest the film laboratory in the National Archives building is on the floor directly over the lab and has treadle-actuated doors which open inward. The door on the left side has to be actuated by someone entering the building, with the result that it usually remains closed during fire drills. Employees must exit single file on the right side and there is always a large bottleneck at this exit. The exit should be modified to permit employees to exit more rapidly.

The National Archives should begin a program to cull out nonarchival nitrate film immediately and destroy it by approved methods or donate it to another depository.

The agency should also adopt and enforce stricter accessioning and retention standards, especially with regard to nitrate film. No new collections should be accepted unless there are facilities to handle them that meet minimum fire and lifesafety standards.

The agency should equip its remaining vaults at Suitland with approved self-closing doors to minimize firespread in the event of another fire.

Vaults should also be equipped with insulated shelving to retard vertical firespread.

A program of testing nitrate film using the alizarine-red heat test should be instituted so that the probable remaining life span of the nitrate film can be determined. By testing film from each year it was issued, it should be possible to work out a schedule for more frequent inspection so that film that is becoming an increasing hazard can be copied and destroyed.

William Mchugh  
WILLIAM MCHUGH, Member

Assistant Editor of Prologue  
Publications Division  
Employee Representative

Mar. 9, 1979  
Date

## APPENDIX A

PROJECT COST ESTIMATE			DATE	APPROVED BY
PROJECT			NO.	DATE
Fire Damage (Expansion)			000005	Feb. 1979
BUILDING			LOCATION	SECTION
Film Vault 300			Suitland, MD	R 6 4 (141)
AREA			DATE	BY
PROJECT STAFF			DATE	BY

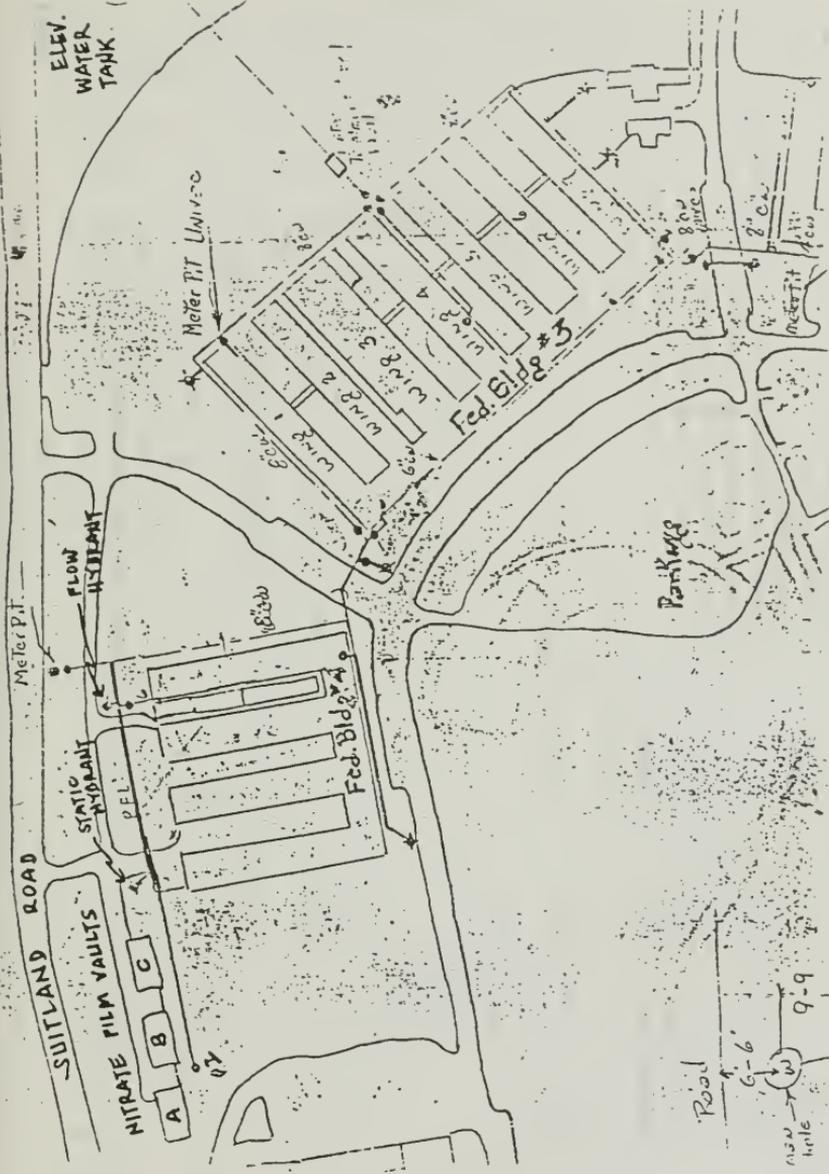
Estimated cost to renovate the above referenced facility as per survey.

ESTIMATED SITE COST (ESC)		
LAND COST	13	
ADDITIONAL LAND ACQUISITION	13	
UTILITY	13	
DEMOLITION, SITE PREPARATION	13	
TOTAL ESTIMATED SITE COST	13	
ESTIMATED DESIGN AND REVIEW COST (EDRC)		
ARCHITECTURAL DESIGN	13	
ENGINEERING COST	13	11,600
CONSTRUCTION TESTS	13	
EXHIBITION	13	1,200
INSPECTION AND MAINTENANCE	13	150
TRAVEL	13	150
TOTAL ESTIMATED DESIGN AND REVIEW COST	13	13,100
ESTIMATED CONSTRUCTION COST (ECC)		
QUANTITY ESTIMATE COST (QEST)	13	106,400
ESCALATION TO	13	
ESTIMATED CONTRACT AND ORDER	13	106,400
CONTRACTORIES	13	7,400
RESERVATIONS	13	
TOTAL ESTIMATED CONSTRUCTION COST	13	113,800
ESTIMATED MANAGEMENT AND INSPECTION COST (EMIC)		
CONTRACT MANAGEMENT AND INSPECTION COST	13	5,000
MATERIAL TESTING	13	
TRAVEL	13	
TOTAL ESTIMATED MANAGEMENT AND INSPECTION COST	13	5,000
ESTIMATED TOTAL PROJECT COST (ETPC)		131,900
ESTIMATED BY (NAME)	DATE	APPROVED BY
S. Ridley, B. Cook	2/1/79	Herb Lister
DATE	DATE	DATE
2/1/79	2/1/79	2/1/79

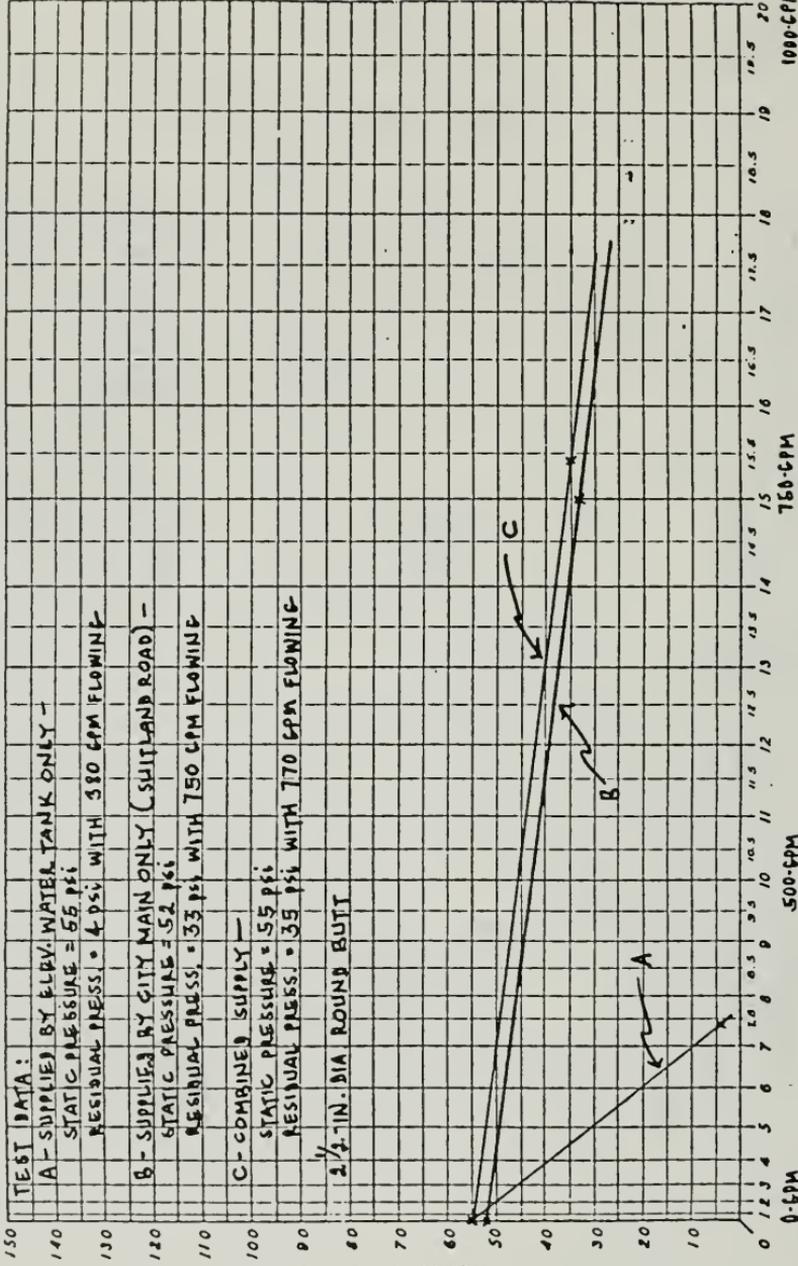
Appendix \_\_\_\_\_ provides a summary of the footage destroyed.

	<u>No. of feet</u>	
Universal Nitrate	12,600,000	Includes outtakes and a still undetermined quantity of releases from volumes 14, 15, 16, and 17.
Other Nitrate	600,000	Includes government produced films as well as some donated footage that is part of the National Archives Gift Collection. Safety copies are available.
Acetate	42,000	Newly converted copies of Universal releases which were being matched against the original nitrate for quality. Randomly scattered rolls from volumes 11 through 13 and volume 14.





FIELD OFFICE - SUITLAND FIELD OFFICE AREA - SOUTH AREA CALCULATIONS BY D. LUNA  
 NAME OF BUILDING NITRATE FILM VAULTS LOCATION SUITLAND, MARYLAND DATE DEC. 19, 1978



TEST DATA:

- A - SUPPLIED BY FLV. WATER TANK ONLY -  
 STATIC PRESSURE = 55 PSI  
 RESIDUAL PRESS. = 4 PSI WITH 380 GPM FLOWING
- B - SUPPLIED BY CITY MAIN ONLY (SUITLAND ROAD) -  
 STATIC PRESSURE = 52 PSI  
 RESIDUAL PRESS. = 3.3 PSI WITH 750 GPM FLOWING
- C - COMBINED SUPPLY -  
 STATIC PRESSURE = 55 PSI  
 RESIDUAL PRESS. = 3.5 PSI WITH 770 GPM FLOWING

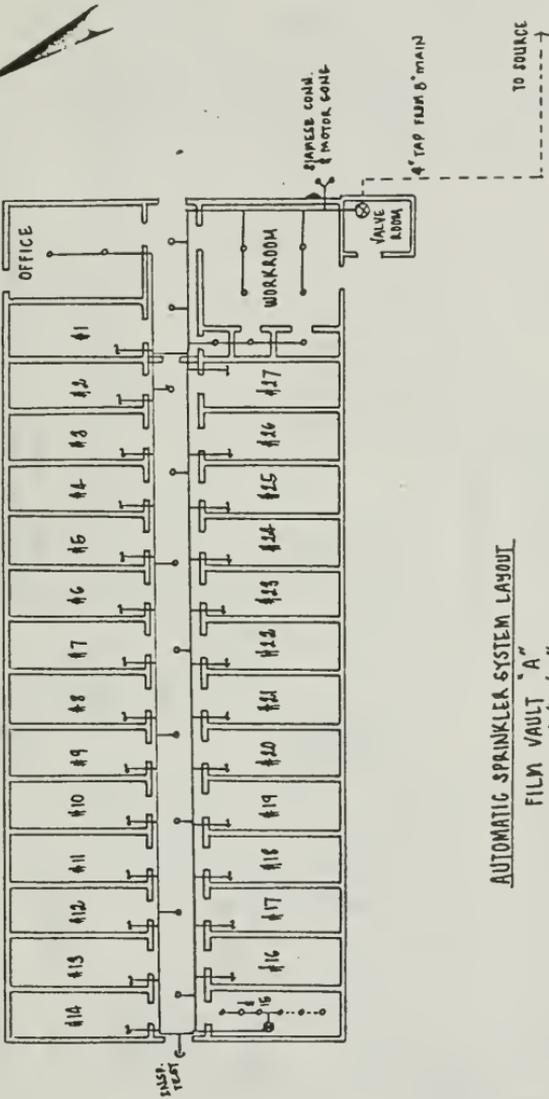
1/2 IN. DIA ROUND BUTT

1000-GPM

500-GPM

750-GPM

FLOW - GAL. PER MIN.  
 MULTIPLY SCALE BY ANY NUMBER TO SUIT TEST

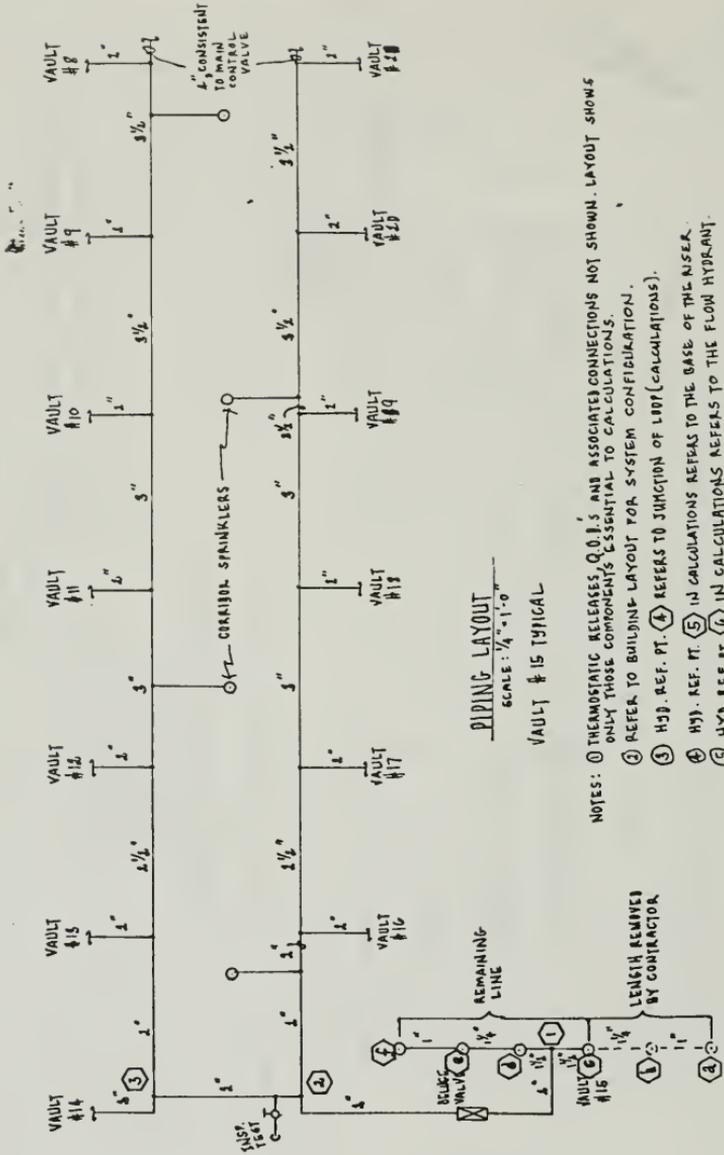


AUTOMATIC SPRINKLER SYSTEM LAYOUT

FILM VAULT "A"  
 SCALE: 1/16" = 1'-0"  
 VAULT # 15 TYPICAL

FOR SCHED. A, MIN. WATER SUPPLY REQ. PER NFPA # 40 = 100% OF 1-VAULT + 25% OF COMMUNICATING-FIRE AREA -  
 = NO. OF HBS IN 1-VAULT + 1/4 OF 2 ADJ. VAULTS + 1/4 OF CORRIDOR (AS)  
 UP TO FIRE DOOR  
 = 6 + 3 + 2  
 = 11 HEADS, SAY 12 OR THE EQUIV. OF 2 VAULTS.

Blue



PIPING LAYOUT

SCALE: 1/4" = 1'-0"

VAULT #15 TYPICAL

- NOTES:
- ① THERMOSTATIC RELEASES, Q.O.B.'S, AND ASSOCIATED CONNECTIONS NOT SHOWN. LAYOUT SHOWS ONLY THOSE COMPONENTS ESSENTIAL TO CALCULATIONS.
  - ② REFER TO BUILDING LAYOUT FOR SYSTEM CONFIGURATION.
  - ③ H39, REF. PT. ④ REFERS TO JUNCTION OF LIFT (CALCULATIONS).
  - ④ H39, REF. PT. ⑤ IN CALCULATIONS REFERS TO THE BASE OF THE RISER.
  - ⑤ H39, REF. PT. ⑥ IN CALCULATIONS REFERS TO THE FLOW HYDRANT.

LENGTH REMOVED BY CONTRACTOR

REMAINING LINE

PROJECT: NITRATE FILM VAULTS  
BUILDING "A", SUITLAND, MD.

CALCULATIONS

BY: D. LUNA

PAGE 1 OF 2

HYD. REF. PT.	FLOW, GPM	PIPE SIZE, W	EQUIV. PIPE LENGTH, FT.	FRICT. LOSS PGI/FT.	TOTAL PRESS PGI	HYD REF PT.	NOTES
a	20	1	2.5	0.130	12.8	a	ORIFICE SIZE = $\frac{1}{2}$ " ; C = 120
	20				0.325	b	
	20.2				13.125	b	
b	20.2	1/4	2.5	0.123	0.308	c	
	20.4				13.433	c	
c	60.6	1/2	1.25	0.127	0.159	1	
f	60.6				13.592	1	
1	121.2	2	54	0.132	13.592	1	
	121.2				7.128	1	
	121.2				20.720	2	
2	121.2	2	15	-	20.720	2	$K_2 = 0.04 ; \sqrt{P} = 4.552$
	(-)-0.2				-	3	
3	121.0	2	16	0.134	2.144	3	
		2 1/2	6	0.056	0.336		
		3	12.4	0.020	0.248		
		3 1/2	12.2	0.010	0.122		
		4	46.9	0.005	0.285		
	121.0				23.855	4	
2	$Q_2 = (K_1 + K_2) \sqrt{P} = (2663 + 0.04) \sqrt{P} = 26.67 \times 4.552 = 121.4 \text{ GPM}$						
	121.4	2	16.4	0.135	2.214	2	
		2 1/2	5.9	0.057	0.336		
		3	12.3	0.020	0.246		
		3 1/2	12.3	0.010	0.123		
		4	41.7	0.005	0.289		
	121.4				25.848	4	

THE CALCULATED PRESSURES AT THE JUNCTION OF THE LOOP (HYD. REF. PT. 4) ARE ALMOST IDENTICAL. NUMERICAL ADDITION OF FLOW MAY THEREFORE BE MADE WITHOUT ANY SIGNI -

PROJECT: NITRATE FILM VAULTS  
BUILDING "A", SUITLAND, MD.

CALCULATIONS  
 BY: J LUNA

PAGE 2 OF 2

HYD. REF. PT.	FLOW, GPM	PIPE SIZE, IN	EQUIV. PIPE LENGTH, FT.	FRICT. LOSS PSI/FT.	TOTAL PRESS, PSI	HYD. REF. PT.	NOTES
FIG. 1 CHANGE IN THE RESULTS. THE HIGHER PRESSURE WILL, HOWEVER, BE USED.							
	$\therefore Q = 12$		$1.0 + 121.4 =$	$242.4$	$400 @ 23.855$		
4	242.4	4	$\left. \begin{array}{l} 16V-2 \\ 17E6-10 \\ 25LL-10 \\ 50 \end{array} \right\} 92$ $8$ (ELEV. ONLY)	0.0188	1.750	4	
	<u>242.4</u>			0.433	<u>3.464</u>		
5	242.4	4	$\left. \begin{array}{l} 35W-30 \\ 16V-12 \\ 66 \end{array} \right\} 118$	0.0188	2.218	5	
	<u>242.4</u>	8	$\left. \begin{array}{l} 35W-30 \\ 304 \end{array} \right\} 420$	0.0005	<u>0.210</u>		Hazen-Williams C=140
	242.4				31.477	6	FLOW HYDRANT
THE FLOW TESTS CONDUCTED BY THE COMMITTEE INDICATE THAT 770 GPM @ 35 PSI IS AVAILABLE AT POINT G. IT CAN THEREFORE BE SEEN THAT WITH A MINIMUM FLOW OF 20 GPM PER SPRINKLER, THE SUPPLY IS ADEQUATE. IT MAY ALSO BE POINTED OUT THAT FOR A STANDARD 1000 CU. FT. NITRATE FILM VAULT FOR ARCHIVAL STORAGE, NFPA 40 RECOMMENDS THE INSTALLATION OF A MINIMUM OF 8 SPRINKLERS. ASSUMING AN 8-FT. CLR. HT. AND 20 GPM FLOWING PER HEAD,							
$\text{SPRINKLER DENSITY} = (\text{TOTAL GPM FOR 8 H.S. FLOWING}) \div (\text{VAULT AREA})$ $= (20 \times 8) \div \left(\frac{1000}{8}\right)$ $= 1.28 \text{ GPM/69. FT.}$							
EACH VAULT IN BUILDING "A" HAS AN AREA OF 84 SQ. FT. APPLYING THE CALCULATED DENSITY, THE REQUIRED MINIMUM FLOW FOR EACH SPRINKLER IN BLDG. "A" CAN BE ESTABLISHED:							
$\text{GPM REQUIRED} = (\text{DENSITY} \times \text{VAULT AREA}) \div \text{NO. OF HEADS}$ $= (1.28 \times 84) \div 6$ $= 17.92 \text{ GPM, Say } 18 \text{ GPM.}$							
WHEN THIS MINIMUM FLOW IS USED, THE DEMAND HAS BEEN CALCULATED AT 218.8 GPM @ 26.641 PSI, A MUCH LOWER FIGURE THAN THE ABOVE RESULT.							
51-332 466							



## APPENDIX E

Chief, Accident and Fire Prevention Branch (3POA)

Upgrade film vaults "A" and "C"  
Sutland Federal Complex - Sutland, Maryland

District Manager, South District (3PCOS)

This memorandum is in reference to the February 23, 1978, preconstruction meeting regarding contract number GS-00B-02960. The following requirements must be considered prior to initiation of any hot-work being done in the work area. In brief, the contract deals with the removal and demolition of the air handling equipment, piping, electrical equipment, and ceiling insulation. In addition, the contract deals with the installation of new air handling equipment, piping, and electrical equipment. As stated by the contractor, Mr. E. Kocharin, the contract allows for hot-work operations such as welding, cutting, and burning to be performed in and near the vault area.

The problem which now exists and must be corrected is the fact that the vaults contain cellulose nitrate film. The known hazard involved is that this film is in a state of decomposition and the gases created are flammable and highly explosive. The products of the film decomposition are capable of spontaneous ignition. Suitable storage must be provided for the existing film away from the existing storage site. Hot-work shall not be permitted if the building contains any cellulose nitrate film. It may be feasible to consider other methods of fabrication or construction which does not entail onsite hot-work.

JAMES A. HAWKINS

JAMES A. HAWKINS  
Chief  
Accident and Fire Prevention Branch

cc:

Official file (3POA)  
Reading file (3POA)  
Mr. M. Yip (3PCOS)  
Mr. P. A. McPhillips (3POA)  
Manager (3PFS)  
Bldgs. Mgr. (3PFSS)

*File* 3/6/78

P. McPhillips  
3 POA: P. McPhillips; ics:3/6/78:21618

DATE	LOCATION	COUNTY	CITY	TIME OF DEPARTING	ROOM NO.	TIME OF DEPARTING	STORAGE	REMARKS
	Ward			8	1	4:30		
	Ward			7		3:30		
	Ward			1		6:30		
	Ward			8		4:30		
	Ward			1		6:30		
	Ward			8		4:30		
	Ward			7		6:30		
	Ward			8		6:30		
	Ward			1		6:30		
	Ward			7		4:30		
	Ward			1		4:30		
	Ward			7		4:30		
	Ward			1		4:30		
	Ward			7		4:30		
	Ward			1		4:30		
	Ward			7		4:30		
	Ward			1		4:30		

GENERAL SERVICES ADMINISTRATION  
 GSA 510 16



## APPENDIX G

October 17, 1977

ENW:

Safety Procedures for Suitland Nitrate Vaults and for Handling Nitrate Film

As a result of a meeting on September 23, 1977, involving ND, NN, ENW, NAS, etc., it was agreed that ENW should assume full responsibility for the security of Buildings A and C, Suitland Nitrate Vaults. Building B remains under the supervision of the Library of Congress. These buildings house archival originals made of nitrocellulose film which is chemically unstable and highly flammable. To ensure the safety of all personnel who are assigned to these buildings and to safeguard archival originals from the risk of fire the enclosed regulations must be strictly observed. These regulations also pertain to the handling of nitrate film in the National Archives building.

WILLIAM T. MURPHY, Chief  
Motion Picture and Sound Recording  
Audiovisual Archives Division

Attachment

SECURITY

All exterior doors must be kept locked at all times even when staff personnel are inside.

All windows and doors will be secured at the end of each work day.

All vault doors must be properly secured at all times except when someone is inside.

A visitor's log must be maintained in each building. Everyone must sign in and out, including all NARS employees.

All visitors must be escorted at all times while in the vaults. An exception is the PBS maintenance engineers who regularly enter the vaults.

Only persons with official business are permitted to enter the buildings.

All keys to buildings A and C will be recalled and registered and will be reissued by NTV at its discretion.

The names and official and residential telephone numbers of the Nitrate Vault Supervisor, the Chief of the Motion Picture and Sound Recording Branch, and the Director and Deputy Director of the Audiovisual Archives Division will be posted on the building entrances. The Federal Protective Office will also be given this information to report emergencies.

FPO will be requested to secure the compound gate at 4:45 p.m. each work day.

RELATIONS WITH PBS

Temperature readings must be recorded each work day at approximately 2:00 p.m., when the outside ambient temperature is above 55°F. The readings must be recorded in a log and initialed by the NIVM employee who makes the readings. The air conditioning is set for 55°. All readings above 55° are to be reported to the PBS Field Manager's Office; the report of this call should be indicated in the log's remarks column.

The Supervisor must maintain a record of all calls to PBS concerning air conditioning problems or other equipment breakdowns. The Supervisor should notify the Branch Chief about these calls and should also report follow up action by PBS.

PBS maintenance engineers will enter the buildings after hours on their regular tours. Other repairmen such as pipefitters or painters who do not regularly enter the vaults must be accompanied by an NIVM staff member.

HANDLING PROCEDURES

No nitrate film is permitted in the work rooms overnight. It should be placed in a vault.

No more than 10,000 feet of nitrate film should be brought into the work room at any one time. Film is to remain in covered cans at all times except when it is being worked on.

No smoking is permitted anywhere in the buildings except in office areas. No smoking is ever permitted in the work rooms.

Devices that produce static electricity or intense heat may not be used; nor may inflammable liquids or solvents be used.

All nitrate film that is sent out of the building should be placed in a metal can with a red label identifying it as nitrate film.

Every can of nitrate film will be sight inspected on a semi-annual basis. An inspection slip will be inserted in each can containing the date of inspection and name of inspector. In addition, a record will be kept of the inclusive can numbers in each vault with a date of the last inspection.

Films showing signs of advanced deterioration (i.e., severe adhesion, melting together and bubbling, and brown powder) must immediately be destroyed by submersion in a water barrel closed by a tight lid. The amount of footage destroyed, can number and vault number should be tabulated and included in the Supervisor's monthly report to the Branch Chief.

Scrap film will also be submerged pending disposal.

Films showing moderate tackiness should be given priority for copying on to safety-base film.

All submerged film awaiting disposal should be stored in a vault (Vault 13, Building A) by itself. All submerged film should be removed from the building within ten working days from its discovery. This can be effected by requesting the Branch Chief to preppare a requisition. Under no circumstances should submerged film be removed from the barrels except for hauling away from the building.

No film cans or cartons may be stored on vault floors or in the corridors.

IN THE EVENT OF A FIRE

All personnel will evacuate the building and go to a safe distance. The Supervisor or other available personnel will go to a phone in another building and call the IPO field office (763-7581). If the line is busy, the Price George's County Fire Department can be reached by dialing 911.

Do not use the fire extinguishers in the buildings to fight nitrate fires or electrical fires. They are for sole use on a paper or similar fire that may occur.

71-51  
OFFICIAL

APPENDIX H

Edward Kocharian & Company  
4137 34th Street  
Mt. Rainier, MD 20822

Subject: GS-00B-02960 - Film Vaults, Bldg. "A" & "C", Suitland  
Federal Complex, Suitland, Maryland

Gentlemen:

Pending review of your proposal No. 3, dated July 24, 1978, you are requested to continue in performing the changed work described in our directive dated June 22, 1978, identified as change order no. 1, plus the following additional change:

At location where the fan coil unit is to be installed in each vault of building A, lower the affected sprinkler heads to immediately below the referenced unit, making sure that the piping would not block accessibility for maintenance and replacement of filters, etc.

This changed work is to be performed on a Price-To-Be-Determined later basis, but not to exceed the amount of \$67,088.45 as an addition to the contract.

All work shall be performed in accordance with applicable contract requirements.

This modification of the contract is designated as Change Order No. 1A PDL.

Sincerely,

RONALD N. MARIOTTI  
Authorized Representative  
of the Contracting Officer

Award Amount: \$296,200.00

PREPARED SEP 2 1 1978

Present Oblig.: \$322,735.00  
CO No. 1A PDL 43,088.45  
Total Oblig.: 357,823.45

Change Order No. 1 \$19,000  
Subtracted 67,088.45  
from 19,000.00  
43,088.45

cc:3PCOS:Official & Reading Files, Yip

SPT - 2

3BCPP - 1

3PDA

3PDI

3PCOS:YIP:ldc:24502:9-14-78

*SPTD R.S. Cross 9/22/78*

... 2854 26214441 401 25516-14000314G.F.1112803.A1112803.411

## APPENDIX I

NATIONAL ARCHIVES MOTION PICTURE VAULT BUILDINGS  
 SUITLAND, MARYLAND  
 Attendant's Daily Report on Temperature Readings

VAULT NO. 25

DATE	TIME	TEMPERATURE	REMARKS
10-16	9	50	HR
10-17	3	51	H
10-18	3	56	H
10-19	3	52	H
10-23	9	58	R
10-24	3	51	H
10-25	3	55	H
10-26	3	60	H
10-27	3	55	H
10-30	9	50	H
10-31	3	54	HR
11-1	3	58	HR
11-2	3	49	H
11-3	3	49	H
11-6	8	56	HR
11-7	3	49	HR
11-8	3	56	H
11-9	3	47	H
11-13	8	56	HR
11-14	3	56	H
11-15	3	57	H
11-16	3	56	HR
11-17	3	51	HR

NATIONAL ARCHIVES MOTION PICTURE VAULT BUILDINGS  
 SUITLAND, MARYLAND  
 Attendant's Daily Report on Temperature Readings

VAULT NO. 26

DATE	TIME	TEMPERATURE	REMARKS
10-16	9	48	HR
10-17	3	53	H
10-18	3	57	H
10-19	3	53	H
10-23	9	59	R
10-24	3	53	H
10-25	3	56	H
10-26	3	61	H
10-27	3	55	H
10-30	9	52	H
10-31	3	56	HR
11-1	3	58	HR
11-2	3	48	H
11-3	3	49	H
11-6	8	56	HR
11-7	3	52	HR
11-8	3	51	H
11-9	3	48	H
11-13	8	55	HR
11-14	3	56	H
11-15	3	58	H
11-16	3	59	HR
11-17	3	58	HR

NATIONAL ARCHIVES NOTICE: PICTURE VAULT BUILDINGS  
 SUITLAND, MARYLAND  
 Attendant's Daily Report on Temperature Readings

VAULT NO. 27

DATE	TIME	TEMPERATURE	REMARKS
10-16	9	48	HR
10-17	3	55	H
10-18	3	59	H
10-19	3	56	H
10-23	9	50	R
10-24	3	62	H
10-25	3	60	H
10-26	3	63	H
10-27	3	57	R
10-30	9	56	H
10-31	3	58	HR
11-1	3	62	HR
11-2	3	52	H
11-3	3	53	H
11-6	8	59	HR
11-7	3	58	HR
11-8	3	50	H
11-9	3	52	H
11-13	8	59	HR
11-14	3	59	H
11-15	3	60	H
11-16	3	61	HR
11-17	3	60	HR

## APPENDIX J

## SUITLAND FEDERAL CENTER

December 7, 1978

78-66698

- Page A - B Overview of Fire Incident
- 1 - 4 Initial Investigation Report
  - 5 - 6 Supplemental (Information From Mr. Anderson  
and Mr. Ed Kocharian)
  - 7 - 9 Statement - Vernon L. Early
  - 10 - 12 Statement - Winston Tnorne, Jr.
  - 13 - 14 Statement - John McCoy, Jr.
  - 15 - 17 Statement - Annie "Viola" Ward
  - 18 Supplemental (Information From Mr. Al Daily,  
Mr. John Phillips, Lt. Cardella)
  - 19 Sketch of Suitland Federal Center (by #1527)

PRINCE GEORGE'S COUNTY, MARYLAND  
FIRE DEPARTMENT  
BUREAU OF FIRE PREVENTION

Date of Report  December 13, 1978	REPORT OF INVESTIGATION	FR. No. 78-66698
Initial or Supplementary  Supplementary		CRB No.
	Report made by <i>[Signature]</i> Lt. D. J. Malberg	Status of Investigation  Closed
Subject of Investigation  Overview of the Fire Incident in Building-A		

There were four persons inside the office area who discovered the fire. They notified the Fire Department and evacuated the building.

These four persons saw smoke from the back vault area, and one person observed orange color coming from one of the vaults in the back area, possibly Vault #9 or near there.

The Fire Suppression Units arrived and initially made a search and rescue attempt. Then as they were backing out of the front of the building, an explosion occurred (apparently from the buildup of flammable vapors from the film burning) and blew four fire fighters out the front of the building. These four, and seven other fire fighters, were injured while fighting the fire.

The fire apparently started in a vault in the right-rear area of the building, possibly in Vault #8 or #9. Physical evidence points to this area, also statements from eye witnesses indicate that the fire started in this area.

The fire was apparently caused by spontaneous combustion of nitro-cellulose film stored in these vaults. This was caused apparently by a heat rise in the vault area, that was apparently caused by an insufficient quantity of freon gas in the air conditioning system.

Information from employees of the film storage building and construction men doing work there indicate that there was a leak in the air conditioning system for about two months, and maintenance men from General Services Administration (G.S.A.) were constantly adding additional freon to the system.

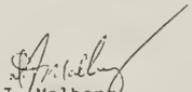
On the morning of the fire, witnesses relate that the compressor was cycling on and off continuously, and the suction and discharge lines for the freon gas and liquid were both hot. This indicates that there was an insufficient amount of freon in the system which would cause a heating effect inside the building, instead of a cooling effect.

Overview of 78-66698  
Page 2

Nitro cellulose film is very susceptible to heat change and a rise in temperature can cause the film to spontaneously ignite.

This is apparently what caused this fire to start. There were also fire protection discrepancies which were found, and these are noted on Mr. Banwarth's report.

Case is closed, apparently accidental ignition from spontaneous combustion of nitro cellulose film.

  
D. J. Malberg  
Lieutenant  
Fire Investigations

hr

## PRINCE GEORGE'S COUNTY, MARYLAND

## FIRE DEPARTMENT

## BUREAU OF FIRE PREVENTION

## INVESTIGATION REPORT

1	DATE/TIME OCCURRED	About 1208 hours December 7, 1978	WEATHER	Clear	FR	78-66699	
2	LOCATION OF INCIDENT	Suitland Federal Center, Nitro Cellulose Film Vaults, A-Build					
3	T/A	National Archives	ADDRESS	PHONE			
	TYPE OF INCIDENT	<input checked="" type="checkbox"/> STRUCTURE FIRE <input type="checkbox"/> FALSE ALARM <input type="checkbox"/> OTHER (specify) <input type="checkbox"/> OUTSIDE FIRE <input type="checkbox"/> MOLOTOV <input type="checkbox"/> VEHICLE FIRE <input type="checkbox"/> EXPLOSIVE DEVICE					
5	M/O	Apparently spontaneous combustion of cellulose film.					
6	ESTIMATED \$ LOSS	85,000	structure	\$75,000	contents	\$10,000	
7	COMPLAINANT'S NAME	Captain Stewart, Federal Protective Service			RACE SEX	B/M	
	ADDRESS	New Labor Department			AGE O O B	-	
		3rd & C Street, NW, Washington, D. C. 20210			PHONE	275-24	
8	REPORTING PERSON				RACE SEX		
	ADDRESS				AGE O O B		
					PHONE	736-14	
	INDICATE:	<input type="checkbox"/> OWNER	<input type="checkbox"/> OCCUPANT	<input type="checkbox"/> VICTIM	<input type="checkbox"/> SUSPECT	<input type="checkbox"/> OTHER (specify)	
9	NAME				RACE SEX		
					AGE O O B		
	ADDRESS				SS. NO.		
	OCCUPATION	ADDRESS			PHONE		
	INDICATE:	<input type="checkbox"/> OWNER	<input type="checkbox"/> OCCUPANT	<input type="checkbox"/> VICTIM	<input type="checkbox"/> SUSPECT	<input type="checkbox"/> OTHER (specify)	
10	NAME				RACE SEX		
					AGE O O B.		
	ADDRESS				SS. NO.		
	OCCUPATION	ADDRESS			PHONE		
	INDICATE:	<input type="checkbox"/> OWNER	<input type="checkbox"/> OCCUPANT	<input type="checkbox"/> VICTIM	<input type="checkbox"/> SUSPECT	<input type="checkbox"/> OTHER (specify)	
11	NAME				RACE SEX		
					AGE O O B.		
	ADDRESS				SS. NO.		
	OCCUPATION	ADDRESS			PHONE		
12	ACTION TAKEN	<input checked="" type="checkbox"/> THIS REPORT <input type="checkbox"/> M.I.R.S. <input type="checkbox"/> EVIDENCE <input type="checkbox"/> J1 <input type="checkbox"/> OTHER (specify) <input checked="" type="checkbox"/> SUPP. REPORT <input checked="" type="checkbox"/> PHOTOS <input type="checkbox"/> WARRANT <input type="checkbox"/> J2 Apparently					
13	CASE STATUS	Closed	IF CLOSED SPECIFY HOW				Spontaneous Combustion
14	INVESTIGATOR	Sgt. W. L. LaMay	I.O.	158	BUREAU OIC.	Captain Poole	

DETAILS ON REVERSE

## I. BACKGROUND DATA:

On December 8, 1978 at about 0830 hours, this investigator met with Lieutenant Malberg at the Bureau of the Census, Records Center, Suitland, Maryland, for the purpose of investigating a fire which occurred in Building A on December 7, 1978. We met with Captain Stewart and Sergeant Anderson of the Federal Protective Service, who had requested our assistance and had maintained custody of the scene.

## II. BUILDING DESCRIPTION:

The building was used by the National Archives for the storage of cellulose nitrate motion picture film. It was a one-story cinder block building with a flat roof. It contained 27 vaults with "blow out panels," a work room, and an office. It is about 35' wide and 100' long.

## III. FIRE CAUSE:

This investigation revealed that the fire originated in one of the storage vaults on the east side of the building (right side). The vaults on that side were numbered 1 - 14. This opinion is based upon the fact that occupants of the building who first noticed the fire observed the fire on that side of the corridor, towards the rear of the building.

These witnesses also noted that several doors were opened on that side, whereas there were no vault doors opened on the opposite side.

The first fire was observed coming out of one of the vaults where the door was opened.

Examination of vaults 1 - 14 revealed the following:

1. The sprinkler system appeared to have operated in some vaults but not in other vaults. (See Fire Protection Engineer Da Banwarth's report for more details.)

It was also noted that only one-half of each of the vaults was protected by the automatic sprinkler system. Portions of the system had been removed two months previous to the fire by the workmen.

2. Vault 8 sustained severe damage as evidenced by the fact that three-fourths of the asbestos ceiling was burned off.

The globe on the light fixture in the ceiling was broken, and the light bulb was elongated and was pointing in the direction of the outside wall. This elongation is usually indicative of the direction of the incipient fire.

## III. FIRE CAUSE CONTINUING:

This characteristic was not noted in any of the other vaults, which would lead this investigator to believe that this vault may have been the room of origin.

By way of corroboration, the first occupants to see the fire recalled seeing smoke coming out of one of the vaults at least halfway (or more) down the corridor. Furthermore, the roof overhang area, just outside this vault, showed severe spalling of the concrete as compared to other areas.

3. Vault 6 also showed damage similar to that of vault 8. In addition, some insulation which covered the horizontal portion of the pipe going to the cooler in the vault was burned away. The light bulb and globe were both broken in this vault.

The hallway area around vaults 1 - 4 sustained more damage than the remainder of the corridor, even though this was not the apparent area of the initial fire. This apparently resulted from the explosion which occurred in one of the vaults in this area.

The explosions occurred from the apparent build up of explosive gases from the film, which formed in the vaults during the fire.

It is believed that the door to the vault where the explosions occurred was not closed tightly and therefore the explosion took the path of least resistance.

Based upon the foregoing information, combined with statements of witnesses and occupants of the building at the time of the fire, it is this investigator's opinion that the fire started in or near vault 8, as a result of the spontaneous ignition of the cellulose nitrate film. The following is submitted as justification for this opinion:

1. The film itself is very susceptible to spontaneous combustion as it produces its own oxygen during decomposition and therefore is not dependent upon outside air. It is very sensitive to heat and must be kept at temperatures of about 50-55°F.
2. One of the workmen who was working in the vaults near the room of origin stated that the room temperature was such as to force him to take his coat off; he normally has to keep a coat on due to the cool temperature.

He also noted that the compressor to the cooling units in the vault did not appear to be functioning properly. It appeared to be very low on freon gas in the system.

3. All other natural and accidental causes for the fire were eliminated.

## IV. EVIDENCE:

This investigator took photographs of the scene, as did employees from General Services Administration.

## V. INTERVIEWS:

See Lieutenant Malberg's report.

## VI. CASUALTY INFORMATION:

Approximately eleven (11) fire fighters were overcome by the fumes from the nitrate cellulose film and were treated at nearby hospitals.

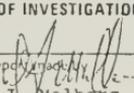
## VII. ADDITIONAL INFORMATION:

The case is closed - apparently accidental.

*William L. LaMay*  
William L. LaMay  
Sergeant  
Fire Investigations

hr

PRINCE GEORGE'S COUNTY, MARYLAND  
 FIRE DEPARTMENT  
 BUREAU OF FIRE PREVENTION

Date of Report 12-8-78	<b>REPORT OF INVESTIGATION</b>  Report made by Lt. D. J. Malberg	FR. No. 78-66698
Initial of Supplementary Supplementary		CRB No.
	Subject of Investigation	Status of Investigation Closed
Investigation of a fire incident at Building-A (Nitro Cellulose Film Stc		

At about 0830 hours this writer, Sergeant LaMay, Inspector Jorden and Fire Protection Engineer David Banwarth met with Captain Stewart, Sergeant Anderson, Mr. John Phillips, and several other persons from General Services Administration (G.S.A.) on the scene of the fire.

We were requested by Captain Stewart of G.S.A. to conduct an investigation into the cause and origin of the fire, and to assist G.S.A. in the overall investigation of the incident.

Sergeant LaMay and this investigator conducted the initial investigation into the cause and origin of the fire, and Inspector Jorden and Mr. Banwarth conducted an inspection of the hazards involved and of the fire protection systems in the building before and after the fire.

Sergeant LaMay conducted the interior cause and origin investigation, and this investigator conducted interviews of employees of the fire building, construction workers doing work there, and firemen on the scene during the fire. This interview and statement information follows.

Sergeant Anderson of the Federal Protective Service, stationed at the Suitland Center, advised that there was a construction company doing work in A-Building the day of the fire. He also contacted Vernon Early, one of the employees in A-Building, for this investigator to interview.

The construction company doing work in the fire building is:

Edward Kocharian Company, Inc.  
4137 34th Street  
Mt. Rainier  
779-3810

Two of their employees who were working in the fire building are:

John McCoy

Winston "Bud" Thorn

Mr. Ed Kocharian is the owner of the company. I talked to him by phone. Mr. Kocharian said that he has a contract with General Services Administration (G.S.A.) to install a completely new air-conditioning system in A and C Buildings. His men were putting anchor in the ceiling (yesterday) to hang "fan-coil" units in the vaults. They did three or four vaults yesterday, before breaking for lunch. They have been working there since April 1978, removing old heating piping and installing new chill water piping chillers, tanks, and pumps.

Also they took about three-foot sections of the sprinkler piping off the system in each vault to make room for the fan-coil units. They did this about three months ago. They would shut down the sprinkler system in the morning and turn it back on when they left in the evening. They did this for about ten days.

The work is supposed to be completed in February 1979, but this has been continued because of design problems in the electrical system on the new work.

Mr. Kocharian was requested to get John McCoy and Bud Thorn and meet this investigator at the scene. He complied and at about 1300 hours this investigator interviewed them on the scene. Their statements are attached.

This investigator also obtained statements from Vernon Early and Viola Ward, two G.S.A. employees who work in A-Building.

HE

- File# 78-66698

CCN: \_\_\_\_\_

PRINCE GEORGE'S COUNTY FIRE DEPARTMENT  
Bureau of Fire Prevention  
Fire Investigations Division

## STATEMENT OF WITNESS/VICTIM

DATE: 12-8-78

TIME: \_\_\_\_\_

STATEMENT OF Vernon Lorenzo EarlyHOME ADDRESS 7209 East Forest Rd.

PHONE: 322-9

BUSINESS ADDRESS Suitland Nitrate Film Vaults

PHONE: 763-5

SEX/RACE/DOB: B/M 6-12-48TYPE OF OFFENSE: Fire in A-BuildingSTATEMENT TAKEN BY: Lt. MalbergLOCATION: Sgt. Anderson's office - F.

(PLEASE PRINT STATEMENT)

Q. Who are you employed by?

A. National Archives - Govt. Services Adm. I work at the Suitland Nit  
Vaults. My duties are preserving nitrate film; I examine film, cle  
- film where it is spliced, and splice film together, and file film  
I also check.

Q. Would you describe what you did yesterday before the fire?

A. I got to work about 8:20 A.M. I was in C-building doing my duties  
all morning until about 12:00. Then I went to building-A to eat  
lunch. The only persons that came into C-building while I was ther  
was the cleaning man "Mario" who works for a cleaning firm. He cle  
the hallway outside the vaults, the office & bathrooms. He does no  
clean inside the vaults. The only others in C-building were George  
Rowe and Donald Haltiwanger. They do what I do. They got some fil

I have read the above statement consisting of \_\_\_\_\_ page(s) and I wish to  
state that the facts and matters therein contained are true and correct  
the best of my knowledge.

D. J. Malberg  
*(Signature)*

Witnessed By

Vernon L. Early  
*(Signature)*

Signature

Statement of Vernon L. Early  
Page 2

78-66698

A. and left for D. C.

Q. When you went to A-building to eat lunch, who was there?

A. Annie "Viola" Ward (my supervisor) and the two contractors Bud and John. They were all in the office at the right front of A-building. They were eating lunch.

Q. How did you become aware of the fire?

A. I had been eating for about 10 minutes. We heard a noise like a "thump," like a car bumping another car. We had smelled no smoke before this. We started kidding Annie about someone hitting her car, so she got up like she was going to check her car. When she got into the hallway by the front door, she yelled "fire." I went out to the hallway by Annie and looked down the hallway where the vaults are. I did not see any flames but I saw smoke down the hallway down near around Vault #9. I couldn't tell where the smoke was coming from. I am pretty sure there was no smoke or fire in the vaults near the office (#1, 2, 3, 4, 5, etc.); the smoke looked like it was down around #9.

Q. What did you do then?

A. I ran over to B-building and told James Wall that A-building was on fire and he called the fire dept. I then ran to C-building and called "911" for the fire dept., but they said it was already reported. Then I went outside the compound (the fenced area) and stood on the Suitland Rd. side of the building. There was no flame yet but smoke was seeping out of the blow-out panels in vaults; possibly #9, then #11 - the vaults toward the back of the building on the Suitland Rd. side. The firemen had arrived before I saw flames. The first flames came from the blow-out panel in maybe #9 or #10 vault. I can't remember if this panel burnt through or blew out. I heard a loud "boom" near the back of the building and then I believe is when I saw the flames from 9 or 10. After this, a few minutes later, I heard one or two more booms. Then a lot more firetrucks came and I moved further away from the fire building.

Q. Do you have any idea how the fire started?

A. No

Q. Were you all having any problems with the cooling systems in the vaults yesterday or recently.

A. I think Viola Ward had called recently to get more freon put in in Bldg.-A.

Q. Are the doors to each vault kept closed or opened?

A. Closed until someone goes in there, and they are supposed to close them when they leave the vault. The door dividing the vault area from the office area is supposed to be kept closed too.

Q. Did anyone put any "old" film in building-A recently?

A. I don't know - I did not.

Statement of Vernon L. Early  
Page 3

78-66698

Q. Did you set the fire?  
A. No

Q. Is the above information the truth?  
A. Yes

Q. Would you take a polygraph exam to verify this?  
A. Yes

Witnessed by D. J.  Malberg

Signed: Vernon Early

hr

FR# \_\_\_\_\_  
UCN: \_\_\_\_\_

PRINCE GEORGE'S COUNTY FIRE DEPARTMENT  
Bureau of Fire Prevention  
Fire Investigations Division

STATEMENT OF WITNESS/VICTIM

DATE: 12-8-78  
TIME: \_\_\_\_\_

STATEMENT OF Vernon Lorenzo Early  
HOME ADDRESS 7709 East Forest Rd. PHONE: 322-  
BUSINESS ADDRESS Smithland Nitrate film vault PHONE: 763-  
SEX/RACE/DOB: M 6-12-48 TYPE OF OFFENSE: Fire in A Bldg  
STATEMENT TAKEN BY: A. Hall LOCATION: Smithland office - F.P.

(PLEASE PRINT STATEMENT)

Q. Who are you employed by?  
A. National Archives - Conf. Services Admin. I work at the Smithland Nitrate Vault. My duties are processing nitrate film, economic film, clean film, microfilm, and 16 mm film, and 8 mm film. Value check.  
Q. Would you describe what you did yesterday before the fire?  
A. I got to work about 8 AM. I was in C-Bldg, doing my duties all morning until about 12:00 then I went to Bldg. A to get some cleaning. The only person that works in C-Bldg with me is the cleaning man "Mick" usually for a cleaning firm. He cleans the hallway outside the vault, the office, bathroom. He does clean inside the vault. The night in C-Bldg, we've George Kent Donald, the janitor. He works in C-Bldg, but I do not get any film and he

I have read the above statement consisting of \_\_\_\_\_ page(s) and I wish to state that the facts and matters therein contained are true and correct to the best of my knowledge.

A. Hall  
Witnessed by

Vernon L. Early  
Signature

STATEMENT OF WITNESS/A. JIM

JCN:

Page \_\_\_\_\_

Q. When you went to A. L. L. to eat lunch, who was the A. L. L. <sup>you</sup> saw, your supervisor, and the two men Budland John. They were all in the shop at that time. At 7 A. L. L. began eating lunch.

Q. How did you become aware of the fire?

A. I had been waiting for about 10 minutes. We had a noise like a "thump" like a car bumping another. We had smelled no smoke before this. We started talking about someone hitting his car, so he got up like he was going to check his car. When he got into the hallway the front door, he yelled "fire". I went out with my gun and looked down the hallway near the engine. I did not see any flames but I saw smoke down the hallway and down near around vault #9. I couldn't tell where the smoke was coming from. I saw nothing down there and saw smoke in the vaults near the office (#1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100). Smoke had piled up down around #9.

Q. What did you do then?

A. I ran over to B. L. L. and told James Wall that A. L. L. saw fire and he called the fire dept. I then went to C. L. L. and called "911" for the fire dept., but they said it was already reported. I went outside the compound (the prison) and to the fire station in the field. There was no flames, yet but smoke was coming out of the door of vaults in south, possibly #9, then #11 - they knowed the back of the vaults on the South side. The fire was

Time Terminated \_\_\_\_\_

A. J. Jim

James L. Earle

had arrived before I saw flames. The flames came from the blow-out panel in room # 9 or #10 vault. I can't remember if this panel went through or blew out. Either I heard a loud "boom" near the back of the building and then I saw when I saw the flames from 9 or 10. After a few minutes later, I heard one or two more fire then a lot more fire in the vaults and I was further away from the fire building.

Q. Do you have any idea how the fire started?

A. No

Q. Were you all having any problems with the radio systems in the vaults yesterday or recently?

A. I think Victor Wood had called recently to get me from put in in City A.

Q. Are the doors in each vault kept closed or open?

A. Closed until some one goes in there and they are supposed to close them when they leave the vault. The door during the vault area from the office area is supposed to be kept closed too.

Q. Did you put any "roll" film in City A recently?

A. I don't know I did not.

Q. Did you set the fire?

A. No

Q. Do the above information the truth?

A. Yes

Q. Would you take a solemn oath to answer the truth?

FR# 78-66698

CCN: \_\_\_\_\_

PRINCE GEORGE'S COUNTY FIRE DEPARTMENT  
Bureau of Fire Prevention  
Fire Investigations Division

## STATEMENT OF WITNESS/VICTIM

DATE: 12-8-78

TIME: \_\_\_\_\_

STATEMENT OF Winston R. Thorne, Jr.HOME ADDRESS 926 Palmer Rd., Apt. 8, Oxon Hill PHONE: 248-47BUSINESS ADDRESS Ed. Kocharian Cr. PHONE: 779-38SEX/RACE/DOB: W/M, 9-2-44 TYPE OF OFFENSE: \_\_\_\_\_STATEMENT TAKEN BY: Lt. Malberg LOCATION: At scene

(PLEASE PRINT STATEMENT)

Q. What exactly did you and your partner do yesterday in A-bldg.?

A. We arrived at 7 A.M. but had to wait until 8 A.M. for George Rowe to come and unlock the door. We started to drill holes in the ceilings of the vaults. We started from the back of vaults #14 and on the other side, and worked towards the front. We had completed about 6 vaults (3 on each side) and placed the drill in the next vault the broke for lunch. We had opened the back door to the outside after Viola told us to to help clear the dust from the drilling work. As we worked in a vault, we had the door opened. When we finished, we closed that door and moved to the next vault. As best as I can remember we closed each door behind us. Also the only place we smoked was in the office where Viola set up a "smoke room."

Q. Did you notice anything unusual yesterday before the fire?

I have read the above statement consisting of \_\_\_\_\_ page(s) and I wish to state that the facts and matters therein contained are true and correct to the best of my knowledge.

D. J. Malberg   
Witnessed By

Winston R. Thorne, Jr.  
Signature

- A. When John and I first arrived at the building-A, we heard the air conditioning compressor cycling off and on repeatedly. This means that the freon gas is low in the unit. As we were sitting in our truck we observed a maintenance man wearing a G.S.A. uniform drive up in a government pick up truck, get out and walk around the building towards where the compressor unit is located. He came back a few minutes later, got into his truck and left. When I have worked here before, I've seen maintenance men check the compressors in the morning. They have had a freon leak in the refrigerant piping in the hallway near Vaults 2 or 3 for at least two months. A G.S.A. work crew tried to patch the leak; they wanted to use a torch but were not allowed to. After this maintenance man left yesterday morning, I walked around to unlock the shed, which is near the compressor. It was cycling off and on continuously and loudly. The unit was vibrating when the cycle changed. I touched the suction and liquid lines of the compressor and both of them were hot. This means that the freon gas in the unit was very low, and therefore was not cooling the vaults. I assumed that the maintenance man that checked earlier had gone to take care of the problem, because they know that this unit or system leaks. In fact I told Viola when she came about 10 A.M. that the compressor was cycling and she said she had already called about it. When I was here a couple months ago I saw Viola's men daily check the thermometers in each vault, but yesterday I did not see anyone go around to check thermometers. Yesterday I also noticed that it was warmer in the vaults than it was outside the building. I had to put my jacket on to go outside to cut the hanger rods. At other times, I would put my coat on to go in a vault.
- Q. What are you and your company doing in building-A?
- A. Installing a new air conditioning & heating system. We had not turned the old system off yet.
- Q. Yesterday when you were eating lunch, how did you become aware of the fire?
- A. Viola and the rest of us heard a loud "thump" like a car hitting a car. We joked with Viola about someone hitting her car. She got up and was going out front to check her car. When she got into the hallway, the hallway door between the vaults and the office area was opened, and she saw smoke down the hallway and yelled "Fire." I went into the hallway and saw smoke (yellowish) down the hallway at least 30 feet away. It was coming towards us at the front. I then went to Bldg.-B and told them to call the fire dept. I then stood outside and saw smoke towards the back of the bldg. - the back door was still open and smoke was coming out there.

Statement of Winston R. Thorne, Jr.  
Page 3

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- Q. What vaults were you and your partner in yesterday?  
A. From where the drill was left back to the rear of the bldg. on both sides of the hallway.
- Q. Is the above information the truth, and would you take a polygraph exam to verify this?  
A. Sure would.

Witnessed by D. J.  Malberg

Signed Winston R. Thro

hr

FR# \_\_\_\_\_

CCN: \_\_\_\_\_

PRINCE GEORGE'S COUNTY FIRE DEPARTMENT  
Bureau of Fire Prevention  
Fire Investigations Division

STATEMENT OF WITNESS/VICTIM

DATE: 12-8-78

TIME: \_\_\_\_\_

STATEMENT OF Winston R. Stone Jr.

HOME ADDRESS 926 Palmer Rd, apt. 4, Exon Hill PHONE: 242-4

BUSINESS ADDRESS P.D. Heckerian Co. PHONE: 779

SEX/RACE/DOB: w/m, 9-2-44 TYPE OF OFFENSE: \_\_\_\_\_

STATEMENT TAKEN BY: J. J. Hall LOCATION: at scene

(PLEASE PRINT STATEMENT)

Q. What exactly did you and your partner do yesterday in A. Bldg.?

A. We arrived at 7:20 but had to wait until 8:00 for George King to come, unlock the door. We started to drill hole in the ceiling of the south. We started from the loading # 14 on the other side, and worked towards the front. We drilled completely about 6 inches (3 on each side) and placed the door in the next south then broke for lunch. We had opened back door to the outside after 10:15 to help clear the dust from the drilling work. As we worked in a vault, had the door open. When we finished, we closed that door and moved to the next vault. As best as I can remember we closed door behind us. A.B. the only place we smoked was in the office.

I have read the above statement consisting of \_\_\_\_\_ page(s) and I wish to state that the facts and matters therein contained are true and correct to the best of my knowledge.

W. J. Hall  
Witnessed By

Winston R. Stone Jr.  
Signature



11 cont. ge area. To check the weather. Yesterday it also noticed that it was warmer in the vaults than it was outside the building. had to put my jacket on to go outside to cut the hanger rods. at all times, I would get my coat on.

Q. What are you and your company doing in bldg. A. Installing a new air conditioning & heating system. We had just turned the old system off.

~~Q. What time was it when you were eating lunch?~~

Q. Yesterday when you were eating lunch, how did you become aware of the fire?

A. Viola and the rest of us heard a loud "thump" like car hitting a car. We joked with Viola about some hitting her car. She got up and was going out to check her car. When she got into the hallway the hallway door between the vaults and the office area was opened, and she saw smoke in the hallway and yelled "Fire". I went into the hallway and saw smoke (yellowish) down the hallway at least 30 ft away. It was coming towards us at the front. They went to bldg. B and told them to call the fire. I then stood outside and saw smoke towards the back of the bldg. - the back door was still open. Smoke was coming out there.

Q. What vaults were you and your partner in yesterday A. From where the drill was left back to the rear of bldg. on both sides of the hallway.

ii) 1 2 3 4 5 6 7 8 9 10 11 12

FILE # 10-000  
CCN: \_\_\_\_\_

PRINCE GEORGE'S COUNTY FIRE DEPARTMENT  
Bureau of Fire Prevention  
Fire Investigations Division

STATEMENT OF WITNESS/VICTIM

DATE: 12-8-78  
TIME: \_\_\_\_\_

STATEMENT OF John E. McCoy, Jr.  
HOME ADDRESS 4211 South Four Mile Run Drive, Arlington PHONE: 521-46  
BUSINESS ADDRESS Ed Kocharian Co. PHONE: \_\_\_\_\_  
SEX/RACE/DOB: W/M, 10-18-57 TYPE OF OFFENSE: \_\_\_\_\_  
STATEMENT TAKEN BY: Lt. Malberg LOCATION: \_\_\_\_\_

(PLEASE PRINT STATEMENT)

Q. Did you smoke in A-bldg. yesterday?

A. I smoked only in the office - that is where Viola lets us smoke.  
Neither Bud or I ever smoke in the vault areas.

Q. What were you doing in A yesterday?

A. I was drilling holes in the ceilings - 4 holes in each vault. We started at the back and worked towards the front, going across the hall to each vault back & forth. We did about 7 vaults then went to lunch in the office. I finished drilling the last vault and left the drill laying there and went to lunch - it was on the right side towards the back.

Q. Did you notice anything unusual yesterday before the fire?

A. I noticed in the hallways that the walls and doors and the refrigerator pipes weren't sweating (dripping with water) like they usually do.

I have read the above statement consisting of \_\_\_\_\_ page(s) and I wish to state that the facts and matters therein contained are true and correct to the best of my knowledge.

D. J. Malberg *[Signature]*  
Witnessed By

John E. McCoy, Jr.  
Signature

Statement of John E. McCoy, Jr.  
Page 2

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- A. (continuing) It felt warmer in the vaults than normal. It was warmer in the vaults than it was outside. I glanced at one thermometer and I think it read more towards 60° than 50°.
- Q. Did you notice anyone else in the vault areas yesterday?
- A. I did not see anyone, but I was drilling a lot.
- Q. When you were working in a vault was the door to that vault opened or closed?
- A. The door was opened; after we finished working in a vault we shut the door and locked it, I am almost positive.
- Q. Did you notice any other doors to vaults opened that you and Bud had not opened?
- A. No
- Q. When you became aware of the fire, where did you see the smoke?
- A. In the hallway near the ceiling towards the back of the building. After I got outside I saw smoke coming out the opened back door. I first saw flames, after the firemen arrived, on the right side towards the rear. Flames were coming out the blow out panels back there, but there was 2 explosions before I saw the flames, then I heard another explosion.
- Q. Is the above information the truth, and would you take a polygraph exam?
- A. Yes.

*J. McCoy*  
Witnessed by D. J. Malberg

Signed: John E. McCoy, Jr.

hr

PR# \_\_\_\_\_

CCN: \_\_\_\_\_

PRINCE GEORGE'S COUNTY FIRE DEPARTMENT  
Bureau of Fire Prevention  
Fire Investigations Division

STATEMENT OF WITNESS/VICTIM

DATE: 12 / 28

TIME: \_\_\_\_\_

STATEMENT OF John E. McCoy Jr.

HOME ADDRESS 4211 South Four Mile Run Drive, Arlington PHONE: 501-

BUSINESS ADDRESS Est. Mechanics Co. PHONE: \_\_\_\_\_

SEX/RACE/DOB: W/M, 10-12-57 TYPE OF OFFENSE: \_\_\_\_\_

STATEMENT TAKEN BY: W. M. Malleo LOCATION: \_\_\_\_\_

(PLEASE PRINT STATEMENT)

Q. Did you smoke in A. bldg. yesterday?

A. I smoke in the office - that is how I like to smoke with Bud & Jim. Smoke the machine.

Q. What are you doing in A. yesterday?

A. I was drilling holes in the ceiling. 4 holes in such row. We started at the back and worked toward the front, across the back and back of it. We did about 7 meters went to back in the office & finished drilling the last one and left the drill lying there and went to back in the on the left side towards the back.

Q. Did you notice anything unusual yesterday before the A. about the hallway that the walls had been a soft wet paper and it smelted (dripping with water) like they

I have read the above statement consisting of \_\_\_\_\_ page(s) and I wish to state that the facts and matters therein contained are true and correct to the best of my knowledge.

W. M. Malleo  
Witnessed By

John E. McCoy Jr.  
Signature

STATEMENT OF WITNESS/VICTIM \_\_\_\_\_

CCN: \_\_\_\_\_

Page 2

Q. It usually does. It felt warmer in the vault than it was warmer in the vault than it was outside.  
 A. It was warmer in the vault than it was outside.  
 Q. Did you see any thermometer and if so, what was it reading?  
 A. I think it read near to 60° then, towards 50°.

Q. Did you notice anyone else in the vault area, yesterday?

A. I did not see anyone, but I was drilling a bit.

Q. When you were working in a vault was the door to that vault closed or open?

A. The door was open; after we finished working in a vault we shut the door and locked it, I am almost positive.

Q. Did you notice any other doors to vaults open that you can find had not opened?

A. No.

Q. When you became aware of the fire, where did you see the smoke?

A. In the hallway near the ceiling towards the back of the building. After I got outside I saw smoke out the ground level door. I first saw flames after the fire alarm on the right side towards the rear, flames were coming out the door out from the back of the building before I saw the flames. Then I heard another explosion.

Q. Is this always information, the truth, and would you <sup>like</sup> to sign this?

A. Yes.

Time Terminated \_\_\_\_\_

W. J. McCall

PR. # 10-00000

CCN: \_\_\_\_\_

PRINCE GEORGE'S COUNTY FIRE DEPARTMENT  
Bureau of Fire Prevention  
Fire Investigations Division

## STATEMENT OF WITNESS/VICTIM

DATE: 12-8-78

TIME: \_\_\_\_\_

STATEMENT OF Annie "Viola" WardHOME ADDRESS 6610 East Wakefield Dr., Apt. B-1, Alexanria 768-151BUSINESS ADDRESS G.S.A. Suitland, Nitrate Film Vaults PHONE: 763-58SEX/RACE/DOB: W/F, 5-16-23 TYPE OF OFFENSE: \_\_\_\_\_STATEMENT TAKEN BY: Lt. Malberg LOCATION: \_\_\_\_\_

(PLEASE PRINT STATEMENT)

Q. What are your official duties?

A. I am supervisor of the film vaults. The following work for me:  
Donald Haltiwanger, George Rowe, and Vernon Early.

Q. Who was working in A-building yesterday?

A. Usually Vernon works in C-building. Donald, George and I work in  
A-building. I got there yesterday at about 10:15 A.M. Vernon was  
at C. Donald and George were in A. Don was in the work room  
preparing nitrate film for preservation (splicing and placing in  
metal containers). Don was working on nitrate cellulose film there.  
George Rowe was working on safety acetate film in the workroom too.

Q. When you arrived at work did you observe anything unusual?

A. As I walked in, I noticed the fire door at the front hall was open  
this is usually kept closed unless someone is in a vault.

I have read the above statement consisting of \_\_\_\_\_ page(s) and I wish to  
state that the facts and matters therein contained are true and correct  
to the best of my knowledge.

D. J. Malberg   
Witnessed By

Annie F. Ward  
Signature

- A. (continuing) I also saw some of the vault doors opened on the right side of the hall towards the back of the building - vaults around 9 through 14. I also saw a large electric cord in the hall there. I asked George about it and he said the Kocharin people were putting hangers in the ceilings for pipes. I went back there and "Bud" told me they were drilling in the ceilings. I told him to open the back door to let the dust out. There were other vault doors opened from the one they were working in.
- Q. Do you normally keep the vault doors closed and locked?  
A. Yessir and the fire door.
- Q. Are the vault doors hard to open and close tight?  
A. Yessir.
- Q. Yesterday when you got to work was the temperature in the vaults warmer than normal?  
A. I did not check temperatures but it felt cold in #26.
- Q. Did anyone tell you yesterday that the air compressor was clicking on and off?  
A. I don't remember, (Bud did I think) but it has been doing that. I heard it yesterday when I was in the workroom. The maintenance engineers usually check the compressors daily. I called Mr. Daily last Friday about the furnace, but several days before that I mentioned to him that the compressor keeps clicking on and off and needed more freon.
- Q. Why wasn't the leak repaired - it has been leaking for over two months.  
A. They wanted to use a torch inside and I would not let them, so they said they would have to keep putting freon in. They are supposed to check each building A - B - C on the outside daily.
- Q. What temperature do you keep the vaults at?  
A. Between 50° and 55° - we try to.
- Q. Is there an alarm that lets you know when the temperature goes above 55°?  
A. No
- Q. How much safety film is stored in building A and C?  
A. Vault 19 had safety film. Nitrate cellulose film was stored in all other vaults.
- Q. Did anyone put any old decomposed film anywhere in building A recently?  
A. Only in water barrells in the hallway. Since the fire last year, we have started every 6 months to physically examine all the film for evidence of decomposition. The film in building A was inspected the 3rd week of October 1978.

Statement of Annie F. Ward  
Page 3

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- Q. How do you think the fire started yesterday?  
A. Maybe the drill they were using. I have had no problem with my workers.
- Q. When you first saw the smoke, where was it coming from?  
A. It was pouring out of one of the opened doors on the right side near the back where they were working. I saw an orange color in the smoke too.
- Q. Is the above information the truth, and would you take a polygraph exam?  
A. Yes
- Q. Who checks the temperatures of the vaults?  
A. When the weather gets cooler, we don't check them too much. But in the summer they are checked daily. We stopped this daily checking about 2 or 3 weeks ago.

Witnessed by D. J. Malberg

Signed by Annie F. Ward

hr

- FR# \_\_\_\_\_

CCN: \_\_\_\_\_

PRINCE GEORGE'S COUNTY FIRE DEPARTMENT  
Bureau of Fire Prevention  
Fire Investigations Division

## STATEMENT OF WITNESS/VICTIM

DATE: 1-8-78

TIME: \_\_\_\_\_

STATEMENT OF Annie "Viola" Ward  
HOME ADDRESS 6610 East Wakefield Dr, apt 1, Alexandria PHONE: 768-15  
BUSINESS ADDRESS G. S. A. Smith Private film store PHONE: 763-51  
SEX/RACE/DOB: W/F 5-16-23 TYPE OF OFFENSE: \_\_\_\_\_  
STATEMENT TAKEN BY: St Mallory LOCATION: \_\_\_\_\_

(PLEASE PRINT STATEMENT)

Q. What are your official duties?

A. I am Supervisor of the film vaults. The following workers  
are: Donald Halliwanger, George Rowe, and Vernon's

Q. Who was working in A-bldg. yesterday?

A. Usually Vernon works in C-bldg. Donald, George and I  
in A-bldg. I get there yesterday at about 10:15 AM. Vernon was  
C. Donald's, George was in A. Don was in the work room preparing nitrate  
for preservation (splicing and placing in metal containers). Don was in  
on nitrate cellulose film there. George Row was working on Safety  
film in the workroom too.Q. When you arrived at work did you observe anything unusual  
A. As I walked in, I noticed the fire door at the front hall was  
open. This is usually kept closed unless someone is in a vault. II have read the above statement consisting of \_\_\_\_\_ page(s) and I wish to  
state that the facts and matters therein contained are true and correct  
to the best of my knowledge.

St Mallory  
Witnessed By

Annie "Viola" Ward  
Signature

FR# \_\_\_\_\_

STATEMENT OF WITNESS/VICTIM \_\_\_\_\_

CCN: \_\_\_\_\_

Page 1

Q. Now, some of the vault doors opened on the right side, the ball towards the back of the building - matter around 9:10. I did see a large light in the hall there, I didn't know what it was. I heard the Keplain people were putting in the ceiling fixtures. I went back there and I saw the people were working in the ceiling. I felt him to open a back door to let the dust out. There was no dust was given from the one they were working in.

Q. Do you normally keep the vault doors closed and locked?

A. Yes, in the fire doors.

Q. Are the vault doors locked by your climate light?

A. Yes.

Q. You today when you get to work was the temperature in the vault warmer than normal?

A. I did not check temperature but it felt warmer.

Q. Did anyone tell you yesterday that the air compressor was clicking on and off?

A. I don't remember but it has been doing that. I heard it yesterday when I was in the workroom. The maintenance men usually check the compressor daily. I called Mr. Daily and he told me the compressor had been going for some time. I was told that the compressor was clicking on and off and was not running.

Time Terminated \_\_\_\_\_

W. A. M. B. L. L.

- Q. Why wasn't the leak repaired - it has been leaking for over two months?
- A. They wanted to use a torch inside and it would not do so they said they would have to keep getting fresh air. They are supposed to check each bldg A-B-C on the outside daily.
- Q. What temperature do you keep the vaults at?
- A. Between 50° and 55° or we try to.
- Q. Is there an alarm that lets you know when the temperature goes above 55°?
- A. No
- Q. How much safety film is stored in bldg. A & C?
- A. Vault 19 had safety film. Nitrate cellulose film was stored in all other vaults.
- Q. Did anyone put any old decomposed film anywhere in bldg. A recently?
- A. Only in water barrels in the hallway. Since the fire last year, we have started every 6 months to physically examine all the film for evidence of decomposition. The film in bldg. A was inspected the 3rd week of October 1978.
- Q. How do you think the fire started yesterday?
- A. Match the child they were using. I have had no problems with my matches.
- Ex. When you first saw the smoke, where was it coming from?
- A. It was pouring out of one of the opened doors on the right side near the back where they were working. I saw an orange color in the smoke too.
- Q. Is there any information that tells you what was the substance?

P-

Q. who checks the temperature of the vault is  
 A. When the weather gets cooler, we don't check it  
 to much. But in the summer they are checked  
 daily. We stopped this daily checking about 2 or 3  
 ago.

Signed George T. Paul Witness W. H. Miller

December 11, 1978  
Supplemental

Report by Lt. D. J. Malberg

78-66698  
Case Status/1

Additional Information:

Mr. Al Daily, the refrigeration man of the Ed Kocharian Company, contacted this investigator by phone.

This investigator asked him general questions concerning freon gas air conditioning systems and he gave the following information:

Mr. Daily said that sufficient freon gas must be in the system to condense into a liquid to cool the "air conditioned" areas. If there is insufficient freon in the system, the remaining freon gas will not condense to a liquid, but will remain in the gaseous form and would heat up. Therefore you would get hot gas going through the system into the building, which would create a heating effect instead of a cooling effect.

Signs of insufficient freon gas in the system, Mr. Daily said, would be:

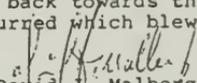
- The compressor would "short-cycle," it would click from the on cycle to the off cycle continuously.
- Also the suction line and hot gas discharge line on the compressor would be hot to the touch.

Mr. John Phillips, the Building Manager at the Suitland Complex called. He said that the maintenance man who checked Building-A on the morning of the fire was Denver Livingston. He could not give any more information at this time, but said he would ask Denver to contact this investigator tomorrow.

Lieutenant John Cardella of the Prince George's County Fire Department, assigned to Station 17, said that he and three other fire fighters arrived on the scene first. They thought that there were people still in the building because the front door was open and they saw no one standing outside the building.

Lieutenant Cardella said that the four of them, wearing self-contained breathing apparatus, entered the front of the building. They went past the fire door to the vault area and opened the three closest vault doors on the right and the closest four doors on the left (see map by David Banwarth). They checked each vault visually, then closed the doors (did not lock them).

As they completed checking the fourth door on the left, Lieutenant Cardella heard (over his radio) an order from an officer outside for all persons inside to get out of the building. Cardella said that he and the other three men were walking back towards the front of the building when the explosion occurred which blew them out of the front door.

  
David J. Malberg  
Lieutenant  
Fire Investigations

hr



ORIGINAL

ENGINEERING REPORT ON FIRE DAMAGE  
AT SUITLAND FEDERAL CENTER  
BUILDING "A"  
SUITLAND, MD.  
ON THURSDAY, DECEMBER 7, 1978

DAVID M. BANWARTH, PE.  
FIRE PROTECTION ENGINEER  
DECEMBER 8, 1978

OCCUPANCY

Nitrocellulose Film Storage Facility. BOCA use Group "A", high hazard classification.

CONSTRUCTION

The subject film storage building is a one story, noncombustible building. All walls are eight (8) inch masonry (CMU) construction. The roof is concrete deck and covered with soil and grass. Floors are concrete. Three identical buildings are used to store film. Building "A" is separated from Building "B" by fifty (50) feet. Building "A" is one hundred (100) feet by forty (40) feet and houses twenty-seven (27) vaults of six hundred ninety-three (693) cubic feet each. Each vault is fifteen (15) feet nine (9) inches by five (5) feet six (6) inches in floor area. Each vault contained approximately nine hundred (900) pounds of nitrocellulose film. Each vault had an explosion panel of fifteen point seventy-five (15.75) square feet in area.

FIRE PROTECTION FEATURES

Building "A" is provided with an automatic sprinkler system in all areas. The system consists of a wet pipe portion and a deluge dry pipe valve in each vault. Water is supplied to the corridor and vaults via wet pipe crossmains from an alarm check valve. A post indicator valve controls supply to the alarm valve. The alarm valve has a tamper switch and is supervised.

From the corridor, a wet pipe extends into each vault room to a dry pipe valve. The dry pipe valve is actuated by each of the following means; manual pulls in corridor, a sprinkler head (fixed temperature of 165° F,) or rate of rise mechanical tube in the vault. Actuation by any of these means will cause water to enter the sprinkler branch lines in the vault. Before water discharge, each closed head must actuate the 165°F. fusible link.

All exits had panic hardware. Maximum travel distance was fifty (50) feet. Exiting geometry was adequate.

DISCUSSION

During my inspection, I found that in each vault the sprinkler piping was dismantled and plugged. Each branch line originally provided six (6) sprinkler heads per vault. The two (2) heads and piping nearest the exterior wall of each vault had been removed and the piping was fitted with a pipe plug to apparently maintain a partial system in service for unknown reasons.

It is apparent that the sprinkler system was originally intended to function as a deluge system in each vault. However, the deluge function was defeated by the installation of improper closed-head sprinklers in the vaults.

Water flow via sprinklers occurred in nineteen (19) vaults and in two (2) offices and in the corridor. In several vaults, heads actuated but no water flow occurred. In one (1) vault (#19) the valve was not in operable condition during the fire. Twenty (20) vaults were burned out with all contents destroyed.

It is apparent that the impaired sprinkler system was incapable of extinguishing the fire.

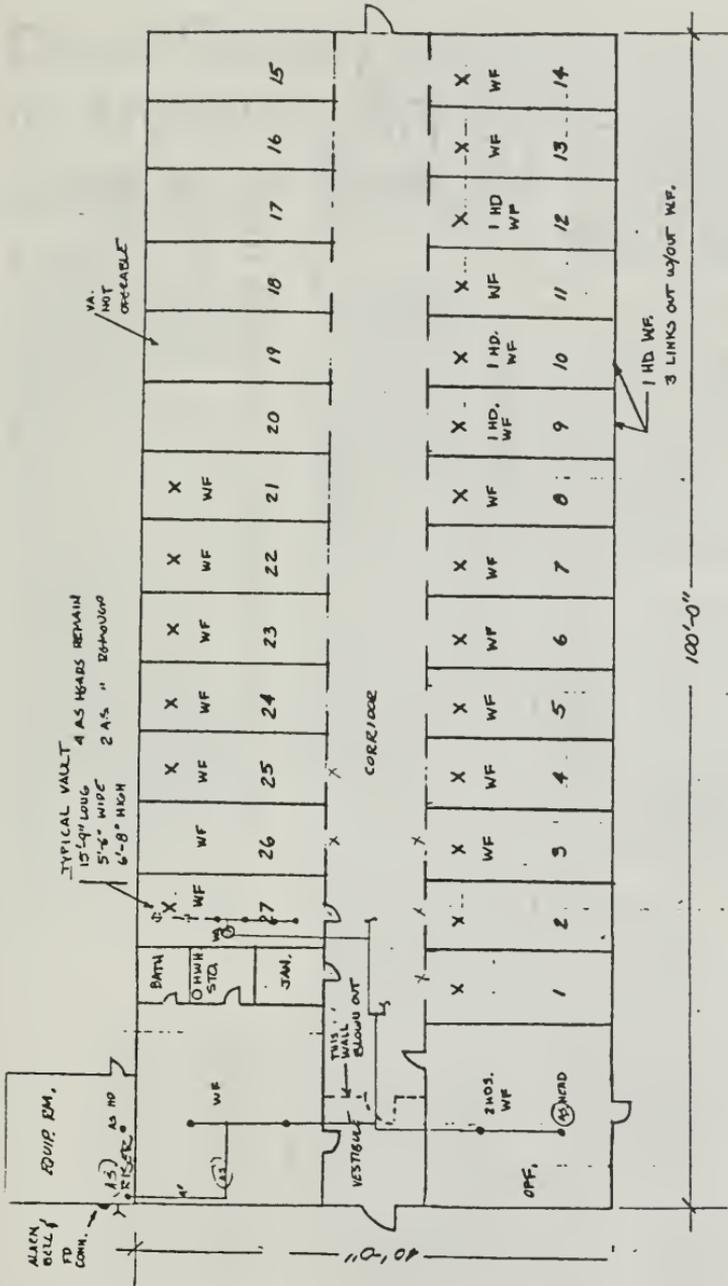
It appears that some vault doors were open during the fire. I was unable to determine whether they were open at the incipient stage or were opened later during firefighting operations.

Open vault doors appeared to contribute to the severity and extension of the fire and may have caused exhaustion of the water supply in critical areas.

#### DEFICIENCIES

1. The vault deluge systems were impaired by improper sprinkler head installations.
2. Portions of the sprinkler piping were removed in each vault (2 removed of 6 total heads per vault.) A total of fifty-four (54) heads were removed.
3. Films were stocked above the level of effective sprinkler coverage in all vaults.
4. Masonry walls should be plastered in accordance with NFPA 40 to limit gas infiltration and explosion potential.
5. Vault doors should be self-closing in accordance with NFPA 40.
6. Additional sprinklers should be installed in each vault. (NFPA 40 (265) requires eleven (11) heads. *for*  
*each of the vaults.*)
7. It is desirable that all vault doors be insulated to inhibit heat transfer thru doors.

APPENDIX K



LEGEND

- X = BURNED OUT VAULT
- LA = AS HEAD LINK ACTIVATED
- WF = A.S. WATER FLOODED (4-HDS.)

SUITLAND FEDERAL CENTER  
BLDG. N

DM BANWALATHI, PE.  
12-11-78

1 HD WF  
3 LINKS OUT w/out WF.

100'-0"

10,00

# Will there be enough time to save the nation's old movies?

By Christopher Hinson  
Washington Staff Writer

Steve Bush rushed to the scene a week ago when he heard that the National Archives' irreplaceable collection of newsreels, toxic smoke, he remarked that reel footage was on fire at the Suitland.

Bush records center for the Library of Congress's huge film collection. Twenty-nine million feet of its highly flammable celluloid, nitrate film — thousands of American feature films and documentaries from the '20s, '30s and '40s — is

and one or more by the pioneer director, D. W. Griffiths. Gloria Swanson has been combing American and Europe for years, and a batch of films (1915-1918) which are recently discovered in the Kluge-Sans-Gene' historical collection, filmed in France in 1925, one of the first American movies made on location.

But every so often, films thought to have been lost forever resurface. They come in, said Spehr, "from colleagues' basements, even from under people's beds!" (That's like sleeping on nitro-glycerine.)

The Library is now busy restoring a batch of films (1915-1918) which are recently discovered in the Kluge-Sans-Gene' historical collection, filmed in France in 1925, one of the first American movies made on location.

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The Washington Star

# Portfolio

• Amusements

SECTION D

THURSDAY, DECEMBER 14, 1978

## FILM

New York, nearly all the major U.S. film studios have been hit with nitrate fires.

But, said Vivien D. "Vic" Armstrong, a Library of Congress mainstay, who has been preserving nitrate films since '29, fire is not the chief problem.

"What we're really in is a race against (film) deterioration," he stressed, walking across the film preservation lab in the basement of the Library's main building.

As he watched one of his subordinates work painstaking with a reel of the 1932 "Daisy Kid" (Penny) starring Tom Mix and Genevieve, Spehr, with a sprouting, cancer-like spots of corrosion.

That corrosion is the main killer of America's film heritage, he said.

Celluloid nitrate film, which was used for nearly all movies until the early '30s, is so fire sensitive that nitrate fires are frequent self-destructs within 50 years, and it gives off toxic gases which can explode if the film is stored at temperatures above 50 degrees.

The Library and other collectors of celluloid nitrate film are racing to convert to modern, triacetate "safety" film before the original footage burns up.

At the moment, film restorers seem doomed to lose the race. Nitrate film can combust spontaneously.

earlier comedy appearance by Oliver Hardy, and Lillian Russell's only film.

But as the restoration work goes on, officials at the Library of Congress, alarmed by last week's fire, that chunk of the film is a substantial loss.

No reels will be destroyed which have not been copied onto safety film, said Spehr. But that assurance may not satisfy black-and-white film aficionados.

## Sprinkler System Blamed in Suitland Blaze

Fire department spokesman Donald Monroe said the Archives warehouse should have had 200 overhead sprinklers, according to building codes, but had only 100.

The warehouse also contained the wrong type sprinkler. The code called for having a deluge system in which all sprinklers throw water simultaneously, the warehouse contained a conventional sprinkler system in which sprinklers are activated individually as a fire heats each one.

### President's Schedule

The President's announced appointments today:

- 11:30 a.m. - Secretary of State, Alexander Haig
- 12:30 p.m. - Secretary of Defense, Frank Carlucci
- 1:30 p.m. - Secretary of Education, William French Wilkins
- 2:30 p.m. - Secretary of Health, Education and Welfare, Joseph P. Kamp
- 3:30 p.m. - Secretary of Agriculture, Earl Butts
- 4:30 p.m. - Secretary of Labor, Raymond J. Donovan
- 5:30 p.m. - Secretary of Housing and Urban Development, Donald H. Regan
- 6:30 p.m. - Secretary of the Interior, James H. Eastman
- 7:30 p.m. - Secretary of the Navy, John S. McCain
- 8:30 p.m. - Secretary of the Air Force, William G. Momyer
- 9:30 p.m. - Secretary of the Army, Carlisle A. Ford
- 10:30 p.m. - Secretary of the State, Alexander Haig

Much of the 26 million feet of toxic newsreel film that was destroyed in a fire last Thursday at the National Archives warehouse might have been saved if the building had a set of sprinklers.

The fire destroyed or damaged film from 1929 to 1951 that included scenes of the bombing of Pearl Harbor, other World War II battle footage, and scenes from the Depression.

The fire started as a result of a broken pipe in the building's cooling system, causing spontaneous combustion of the film.

Nitrate negatives make bet copies than does safety film, argued Audrey Kupferberg, a collector at Kennedy Center's American Film Institute.

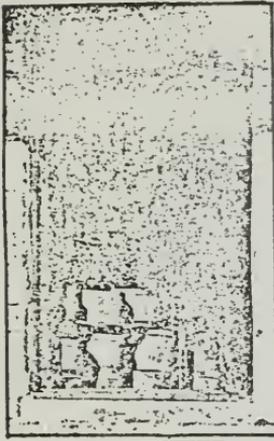
"And nitrate based film makes warmer, crisper tones. There's more black-and-white which treats scenes better," he admitted.

"But I'll have to admit," he added, "that as the films get old and older, the danger of storing them gets higher and higher."

# Open Doors Blamed In Archives Film Fire In Storage Bunkers

By Christopher Hanson  
Washington Star Staff Writer

A federal safety expert has criticized the Prince George's County Fire Department for prematurely exonerating itself in the spread of a Suitland fire which destroyed two-thirds of an irreplaceable National Archives collection of newsreel footage.



County investigators have concluded that the fire started when highly flammable, potentially explosive, celluloid nitrate film overheated in one vault and ignited spontaneously.

The investigators attribute the spread of the fire primarily to an inadequate sprinkler system, which was designed for an ordinary office building, not a storage bunker for highly flammable film.

The sprinkler system had been partly shut down by workmen so that only half the water outlets could operate when the fire broke out, according to fire department spokesman Duncan Monroe.

But Steven E. Bush, a safety expert who is responsible for the Library of Congress's huge collection of nitrate film in Suitland, says the investigators have failed to account for the possibility that the fire spread as a result of open doors inside the building.

The structure which burned, like two other film storage bunkers in Suitland, consisted of 27 vaults which are equipped with "blow-out panels," so that any fire and ensuing explosion will spew out into the yard and not spread to the surrounding vaults.

But, according to a specialist familiar with the building's design, "the vault door must be securely latched" if the fire is to be contained in the vault where it originates. Due to the highly combustible nature of celluloid nitrate, the contents of a film vault with an open door are almost certain to burn once a fire of any size has started close by.

According to Viola Ward, a National Archives clerk who was in the building shortly before it burned Dec. 7, at least two, and possibly four, vault doors had been left ajar by workmen.

Later, when firemen entered the building, said Monroe, they began opening doors in search of victims. Estimates vary, but at least seven doors had been opened by the time the firemen were ordered to vacate the building because of toxic gas and the danger of explosions.

The firemen closed the doors they had opened but cannot recall whether they relatched them, according to Monroe. They thought the doors relatched automatically, a source close to the investigation said.

"There was no time to worry about tidying up," said Monroe, noting that an explosion which ripped through the central corridor "literally blew six men out of the building."

Monroe refused to allow a reporter to question the firefighters who entered the building.

However, he maintained that open vault doors were "irrelevant" to the fire's spread. He said that once a nitrate fire starts, there is a "snowballing effect," so that the film will burn regardless of whether protective vault doors are latched or unlatched.

In the Dec. 7 fire, however, the contents of six vaults were untouched by the blaze. The doors of those vaults were securely latched, according to a source close to the investigation.

The survival of film in those six vaults is one factor which led Bush, of the Library of Congress, to question the conclusions of the Prince George's fire investigators.

Prince George's News: 484-4272

FRIDAY, DECEMBER 15, 1978

Garden Comics Obituaries Classified PG

The Prince George's Star  
Southern Maryland

# Questions Rise From The Ashes

By Christopher Hanson  
Washington Star Staff Writer

Two questions were waiting in the ashes as investigators probed the scene of a fire which roared through a National Archives film storage vault in the Suitland Federal Records Center on Thursday.

To the horror of historians and filmmakers, the blaze destroyed over 10 million feet of irreplaceable newsreel footage from the 30s and 40s.

The first question facing fire investigators is: How could the flames have spread so extensively through a building which consisted of 27 supposedly fire-tight vaults?

The building, like two adjacent ones which were untouched by Thursday's fire, was specially designed to house celluloid nitrate, the highly combustible film used in all movies until the early 1950s.

Due to chemical instability, celluloid nitrate self-destructs, usually within 50 years, and it emits toxic gases which can explode.

Each heavily insulated film vault at Suitland was equipped with an air-tight door and "blow-out panels" on the outside wall, so that any fire and ensuing explosion would spew out onto the lawn and not cause a chain-reaction within the building.

The safeguard worked in August 1977 when a fire broke out in another National Archives film bunker at Suitland, but did not spread beyond the vault of origin.

But why did the safeguard fail to work on Thursday, when two-thirds of the building's vaults were gutted by flash fires and multiple explosions?

One theory advanced by a safety expert close to the investigation is that the vault doors, air-tight when latched, were somehow left open or not properly secured, and thus the fire spread quickly from vault to vault.

Capt. Tom Lanier, who supervised the first wave of fire fighters to enter the building, denied that his men opened any vault doors. "We didn't have time before the first explosion hit us," he stated.

But, contradicting Lanier, Duncan Monroe, a spokesman for the Prince George's Fire Department, stated that fire fighters had opened about half the

## Film *From FX-1*

vaults before being ordered out of the building.

However, Monroe stressed that "all the vaults were relatched. We have considered and rejected the possibility that the fire was spread by our own men."

The safety expert stated that "unless doors were left open, I can't conceive of how that fire spread."

Monroe cautioned, however, that "we don't know enough about this nitrate to predict what will happen. When those explosions got going, doors were literally swinging open and slamming shut."

In addition to the vault-door mystery, there is a second question posed by the fire: Was the wrong sprinkler safety system installed in the building?

While wandering among the ashes and melted metal film cases Friday, two safety experts noticed that the building's sprinkler safety system was not designed for nitrate storage.

See *FILM, FX-2*

# The Washington Post

SATURDAY, DECEMBER 23, 1978

## History Ablaze

A lot of history went up in flames at the National Archive's film storage facility in Sulland recently. The spectacular blaze consumed about 12.5 million running feet of highly flammable nitrate film, all "outtakes" (leftovers) from newsreels made by Universal Studios between 1929 and 1951. The footage covered a whole range of public events, from the depths of the Depression to World War II battles to beauty contests and sporting events. Though other news film from those years is available, nobody knows what unique glimpses of the past were lost.

Since a smaller fire destroyed a vault of "March of Time" outtakes last year, the Archives had intensified its efforts to safeguard this volatile celluloid until it could be copied onto modern safety film. But the job should be speeded to protect the Archives' remaining 13.4 million feet of Universal film as well as larger collections of old movies in the Library of Congress' special vaults.

Archives officials calculate that they would need about \$2.5 million to finish their part of this task in two years. The Library would need somewhat more. Can this be found without running up the federal deficit? Government agencies, especially the military services, spend many times \$2.5 million on new audiovisual productions each year. Surely some money could be diverted to preserve the sounds and pictures of the past.

## APPENDIX M

December 7, 1978

TO: Captain Samuel Stewart,  
Zone 3 Commander

FROM: Alphonza Anderson,  
Zone 3 Squad Sergeant, Suitland, Maryland

SUBJECT: Fire and Explosion at the Suitland Reservation.

COMPLAINT NO. 003165

December 7, 1978

The interior of the building and all its contents were totally destroyed.

As requested by the fire chief, we have set up a detail of men to keep the immediate area around the building under surveillance for 24 hours, beginning at 3:00 P. M. on eight hour shifts.

The cause of the fire is still being investigated.

Sgt. Alpha Anderson

## Running Log

- HRS.
- 1300 Command Post was set up in Room 0157 FB-4 By Officer Ray J Bar and Sgt. A. Anderson  
Deputy Chief Fred Grant and Sgt. Hockey arrived at C.P.
- 1308 Chief Maddock telephoned C.P. for information on fire and was advised of situation.
- 1313 FPO's from TAC and SEU arrived at FB-4 to assist in controlling traffic and Pedestrians.
- 1315 Fire Department requested that vehicles near the fire scene be removed; request was complied with.
- 1330 C.P. was moved from room 0157 to room 0323.
- 1332 F.D. Fire Fighters still fighting fire appears to be under control.
- 1335 Deputy Chief Grant advised Chief Maddock off the situation.
- 1335 60 pieces of fire equipment on scene 7 Firemen injured were taken to P.G. Hospital. 3 Firemen were taken to Greater S.E. Community Hospital
- 1345 Fire accident and prevention was notified; was on scene.
- 1350 Forensic 2 (Sgt. E.N. Gray), 10 (Technician M.A. Richburg), and 19 (Technician S.R. Harrison); were on the scene taking Photographs.
- 1351 Fire under control. 11 reporteds injured 1 civilian and 10 firemen.
- 1355 Unit 301 advised C.P. that all FPS personnel who inhaled any toxic fumes or smoke to check in with Public Health
- 1358 Fire reported to be under full control by Sgt. Anderson.

H.E.s.

- 1400 Andrews Air Force Base Fire Department departed fire scene (Crash Truck).
- 1405 C.P. advised vault "A" Fire appears to be under control.
- 1410 Silver Hill F.D. still on scene.
- 1412 Area around fire scene secured; No traffic permitted near area.
- 1415 Firefighters is still pumping water into Vault "A".
- 1417 Fire is controlled after one hour.
- 1422 Some fire equipment is departing at this time.
- 1430 The fire is fully controlled.
- 1445 Sgt. Hockey telephoned C.P. from Great S.E. Community Hospital with information concerning the injured, 3 Firemen (Green, Murphy, Fireman Rice suffered 1<sup>st</sup> and 2<sup>nd</sup> degree burns about the facial and He area, 3 Civilians was treated from smoke inhalation.
- 1455 Firemen are checking for further damage.
- 1500 More fire equipment are departing the scene.
- 1515 All but 3 pieces of firefighter equipment have left the scene.
- 1525 Traffic is moving on Suitland Road normal.
- 1535 Units of FPS will be checking into S.E. Public Health for treatment from inhalation toxic fumes and smoke, as stated by Eagle-9.
- 1540 Two pieces of fire-fighting equipment is still on the scene.
- 1542 All S.E.U. Units are departing from Suitland.
- 1550 All TAC Units are departing from the scene of the fire, except two TAC Officers.

HRS.

- 1600 One piece of fire fighting equipment is still on the scene
- 1620 Several firemen are checking the
- 1630 Closing down Command Post, all fire equipment are leaving the scene
- 1645 Area is secure

See supplement report from Sgt. Heck for further information.

9 SEU UNITS

9 TAC UNITS

5 ZONE 3 UNITS

Sgt. R. Anderson  
Officer Ray J. Barnes

51-332 535

GENERAL SERVICES ADMINISTRATION REPORT OF FIRE		1. DATE OF INCIDENT	2. REGION NO.	3. (Leave Blank)
(Attach additional plain sheets as necessary)		12-17-78	3	
4. TYPE OF INCIDENT (Check as appropriate)				
<input checked="" type="checkbox"/> FIRE <input checked="" type="checkbox"/> EXPLOSION <input type="checkbox"/> SPRINKLER LEAKAGE <input type="checkbox"/> OTHER (Specify)				
5. LOCATION	A. BUILDING AND FACILITY IDENTIFICATION (Include building number and name)		B. ADDRESS	
	Film Vault "A" MD0337A3		Suitland and Silver Hill Rds. Suitland, MD 20823	
	C. EXACT LOCATION OF FIRE (Floor, area, room number, etc.)			
	Entire building		D. OCCUPANT OF AREA INVOLVED National Archives	
E. TYPE OF OPERATION (Office, storeroom, paint shop, etc.) Storage vaults (Nitrate film)				
6. BUILDING DATA (Check as appropriate)	A. OWNERSHIP			
	<input checked="" type="checkbox"/> FEDERAL-AND- <input type="checkbox"/> NONFEDERAL-AND-			
	<input checked="" type="checkbox"/> FEDERALLY OCCUPIED <input type="checkbox"/> LEASED FROM GOVERNMENT <input type="checkbox"/> OTHER (Specify)			
	<input type="checkbox"/> LEASED TO GOVERNMENT <input type="checkbox"/> MORTGAGED BY GSA WITH NATIONAL SECURITY CLAUSE <input type="checkbox"/> OTHER (Specify)			
B. OPERATED BY				
<input checked="" type="checkbox"/> GSA <input type="checkbox"/> OTHER FEDERAL <input type="checkbox"/> NONFEDERAL				
C. ORIGINAL DESIGN FOR				
<input type="checkbox"/> OFFICE <input checked="" type="checkbox"/> WAREHOUSE <input type="checkbox"/> MANUFACTURING <input type="checkbox"/> OTHER (Specify)				
D. CONSTRUCTION				
<input checked="" type="checkbox"/> FIRE RESISTIVE <input type="checkbox"/> BRICK JOISTED <input type="checkbox"/> ALL METAL <input type="checkbox"/> WOOD FRAME <input type="checkbox"/> OTHER (Specify)				
7. DISCOVERY	A. NAME OF PERSON WHO DISCOVERED INCIDENT:		C. TIME DISCOVERED	
	Viola Ward		Supervisor 11:55 a.m.	
D. WAS THERE DELAY IN GIVING ALARM?				
<input type="checkbox"/> YES (Explain) <input checked="" type="checkbox"/> NO				
8. NOTICE	HOW WAS NOTICE OF INCIDENT GIVEN GSA CONTROL OFFICE? (Guard office, superintendent's office, etc.) (Check as appropriate)			
	<input type="checkbox"/> PERSONAL FIRE ALARM <input type="checkbox"/> GENERAL FIRE ALARM <input type="checkbox"/> AUTOMATIC SPRINKLER ALARM <input checked="" type="checkbox"/> TELEPHONE <input type="checkbox"/> OTHER (Specify)			
9. BRIEF STORY OF INCIDENT	11 (Cover all important details, including point of fire origin and how extinguished.) (Attach additional sheets if more space is needed. Sketches and photos also may be attached.) The Prince Georges's County Fire Department arrived at 12:15pm and immediately entered the building, which was full of heavy yellow nitrate smoke to search for people. The first explosion forced the firemen out of the building, knocking one man against the door. The pressure release panels in the vaults were knocked out and cannisters of film were blown out. The fire engulfed most of the building, with fire coming out of both doors and the sides where pressure panels had been blown out, and blazes more than 30 feet high. The fireman fought the blaze with water and brought it under control by 1:15pm. Approximately 100 people were evacuated from apartments and businesses nearby due to hazardous smoke. Eleven firemen and one			
			DATE	FIRE OUT
			TIME	AM PM
10. FIRST AID FIRE EQUIPMENT	A. WAS THERE A STANDPIPE SYSTEM?		B. IF "YES," WAS IT USED?	
	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO	
D. WERE THERE FIRE EXTINGUISHERS?		C. IF "YES," WAS OPERATION SATISFACTORY?		
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO (Explain)		
E. IF "YES," GIVE ONLY TYPES APPLIED		N/A		
11. CAUSE	A. DIRECT CAUSE (Welding, smoking, etc.)		B. CONTRIBUTING FACTORS (Defects in construction, occupancy, hoover-keeping, protection, etc.)	
	Unknown		Unknown	
C. WERE THE FACTORS LISTED IN "B" PREVIOUSLY REPORTED FOR CORRECTION?				
<input type="checkbox"/> YES <input type="checkbox"/> NO				
12. GROSS LOSS	A. AMOUNTS REPORTED ARE		B. LOSS TO	
	<input type="checkbox"/> FINAL <input checked="" type="checkbox"/> ESTIMATES (Will be corrected later)		GSA OWNERSHIP: \$ unknown BUILDING: \$ CONTENTS: \$ unknown OTHER PROPERTY: \$	
13. (Give name, employment, extent of injury and cause)				
See "9"				

-2-

civilian were hospitalized and released. Approximately 30% of the film stored in the building was able to be salvaged.

14. INVESTIGATOR (Signature) <b>W. E. SHIPP</b>	TITLE <b>Acting Buildings Manager</b>	DATE 
15. ACTION TAKEN AND RECOMMENDATIONS TO PREVENT RECURRENCE (To be completed by Building Manager or other person in charge)  An AD HOC committee has been established to investigate the fire, for the purpose of determining causes and making recommendations to prevent recurrence.  <i>W. E. Shipp</i> <b>W. E. Shipp</b> Acting Buildings Manager (3PFSS) <span style="float: right;">11/10/79</span>		
(Signature) (Title, including operational unit) (Date)		

16. COMMENTS (Area Manager, Branch Chief, etc.)  <i>T. W. Harrington</i> <b>T. W. Harrington</b>	I feel the Ad Hoc Committee should review the reasons the P.C. County F.D. would not allow them to be used on this fire. An An. fire from truck was on the site and could have been used.  <b>Manager, South Area</b>
(Signature) (Title) (Date)	

17. COMMENTS (Chief, Region Protection Branch)	(Date)
(Signature) (Date)	

**REMAINING ITEMS TO BE COMPLETED ONLY WHEN LOSS EXCEEDS \$25.00**

ALARM SYSTEM	18. A. DID BUILDING(S) HAVE ALARM SYSTEM(S)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO B. IF "YES," GIVE TYPE(S) (Automatic, manual, etc.) <b>Automatic</b> C. WERE ALARM SYSTEM(S) USED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (Explain) D. DID ALARM SYSTEM(S) OPERATE SATISFACTORILY? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (Explain) <b>System under contract GS-08B-0296B</b> E. WERE SYSTEM(S) SUPERVISED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO F. IF "YES," GIVE TYPE OF SUPERVISION (To Guard Office, Fire Department, etc.)	
--------------	--	--

AUTOMATIC SPRINKLERS	19. A. WAS AREA OF FIRE PROTECTED BY AUTOMATIC SPRINKLER(S)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO B. TYPE OF SYSTEM <input checked="" type="checkbox"/> WET <input type="checkbox"/> DRY <input type="checkbox"/> OTHER C. % OF AREA INVOLVED IN FIRE PROTECTED D. DID SPRINKLERS EITHER EXTINGUISH OR CONTROL FIRE? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (Explain) <b>Unknown at time of fire, due to contractor working on site.</b> E. NO. OF SPRINKLER HEADS OPERATED <b>108</b> DATE <b>N/A</b> TIME	
----------------------	--	--

GAS OR LIQUID EXTINGUISHING SYSTEMS	20. A. WERE ANY OPERATED AT FIRE? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO B. IF "YES," GIVE TYPE AND NAME <b>N/A</b> C. DID SYSTEM EITHER EXTINGUISH OR CONTROL FIRE? <input type="checkbox"/> YES <input type="checkbox"/> NO (Explain) <b>N/A</b>	
-------------------------------------	--	--

SELF PROTECTION ORGANIZATION	21. A. WAS THERE A BUILDING SELF PROTECTION ORGANIZATION? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (Explain) B. WERE DRILLS HELD REGULARLY? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO C. DATE OF LAST DRILL D. DOES SELF PROTECTION ORGAN. INCLUDE A FIRE BRIGADE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO E. IF "YES," DID FIRE BRIGADE PARTICIPATE IN INCIDENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO F. WAS FACILITY EVACUATED AS A RESULT OF THE INCIDENT? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO G. IF "YES," WAS EVACUATION SATISFACTORY? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (Explain)	
------------------------------	---	--

PUBLIC FIRE DEPARTMENT	22. A. WAS PUBLIC FIRE DEPARTMENT CALLED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO B. CALLED BY MEANS OF telephone C. RESPONDED IN <b>15</b> EST MINUTES D. NAME OF PERSON CALLING FIRE DEPARTMENT <b>Unknown</b> E. COMMENTS	
------------------------	--	--

WATCHMAN SERVICE	23. A. WAS THERE GUARD OR WATCHMAN SERVICE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO B. IF "YES," GIVE HOURS BETWEEN PATROLS ON 1ST RELIEF <b>N/A</b> HOURS 2D RELIEF <b>N/A</b> HOURS 3D RELIEF <b>N/A</b> HOURS	
------------------	---	--



General Services Administration - Region 3  
Washington, DC 20407

Date : December 7, 1978  
 Reply to :  
 Attn of : Sgt. J.T. Hockey, Staff Duty Section, Second Relief (3PSOS)  
 Subject : Fire and Explosion, Film Vault "A", Suitland Reservation  
 To : Deputy Chief Grant, Staff Duty Section (3PSOS)

At approximately 1430 hours, I interviewed Ms. Annie Ward, Supervisor, Film Vault "A", Suitland Reservation, at the Greater Southeast Hospital Emergency Ward.

Ms. Ward states that at approximately 1210 hours this date, she and another employee, Mr. Vernon Early, were in the office eating lunch with two commercial contractors, reported to be under contract with GSA to renovate the heating and chilling units in the building, by the names of "Bud" and "John". The name of the firm doing this renovation work is unknown to her. At 1210 hours she heard an "...awful pop noise ." and her fellow worker kidded her about someone hitting her auto outside the building. Ms. Ward states that she got up from her chair and went into the hall where she observed a "...tremendous..." black smoke coming into the hall from Vault 11 or 12. She alerted the others and immediately evacuated the building. Ms. Ward got into her vehicle and drove to FO#3 and reported the fire to FPO Shaw, who spoke with her to quiet her down. At about this time another unit was contacted by the F.P.S. and Officer Shaw requested assistance from the building nurse in trying to comfort Ms. Ward. After leaving FO#3 Ms. Ward went to Greater Southeast Hospital as a precautionary measure. It is not known at the time of this writing whether or not she suffered any injury resulting from the explosion because I left during her examination. It should be noted that this person was elderly and emotionally distraught.

Ms. Ward stated that the building housed twenty-seven internal vaults and contained irreplaceable, historical "Universal Newsreel" film. Twenty-six vaults contained this highly flammable celluloid-nitrate film, while the remainder contained safety colored film. No classified material was destroyed in the fire.

According to Ms. Ward the contractors Bud and John had been working earlier in the vaults from which she observed the smoke emitting. They are reported to have been installing hangers to the ceiling to hold up

pipes being prepared to renovate the heating and chilling systems in the individual vaults. The contractors were not known to be using any burning equipment in the vaults, nor were they known to be using pipe tobacco while working in the film vaults. These persons were last observed by Ms. Ward talking with the Fire Department Paramedics outside of the compound.

Ms. Ward further stated that she knew of no fire hazards or fire safety regulations being violated by the workers in the building. Upon additional inquiry, she said all of the workers had a good working relationship. She does not suspect arson. Ms. Ward is employed by the National Archives, 7th & Pennsylvania Ave., N.W., Washington D.C.. Her immediate supervisor is Mr. W. Murphy, 523-3274.

While at the hospital I learned that several firefighters had sustained injuries. Amongst them were Patrick Green and Danny Murphy who received 1st and 2nd degree burns to the left side of their foreheads and were being treated for smoke inhalation at this facility. Firefighter Mike Rice also was taken to the hospital and treated for a second degree burn of the ear as well as smoke-inhalation. These three firefighters and an unidentified lieutenant who happened to have been the first unit on the scene, were three-fourths of the way down the hall towards the fire when an explosion occurred, causing them injury. These firefighter were warned by Mr. Early prior to their entering the building that it contained celluloid nitrate film. It was later learned that six additional firefighters and the unidentified lieutenant were treated for smoke inhalation at Prince Georges Hospital, Cheverly, Maryland. All information concerning fire victims is being channeled through the hospital Public Relations Office, 341-3357.

At 1450 hours, I interviewed Mr. Early, also employed by the National Archives at this film vault, and also with Ms. Ward when the fire and explosion occurred. At 1210 hours, he stated that he heard what sounded like something backing into a car. This "thump" sound was faint but audible. He stated that Ms. Ward got up from her seat, looked down the hall and said "fire." Mr. Early stepped into the hall and observed a brownish-orange smoke coming from the back of the hall on the right side. He states that the smoke was coming from the vicinity of vaults numbered 10 through 14. According to him it was "...no fire just smoke." They evacuated this building of its occupants as instructed in fire situations. Mr. Early went to Vault C building and called the Fire Department. Vault C building was not occupied or worked in at this time (see previous fire report on this building, dated 1977). This fence enclosed compound was evacuated of all employees at this time.

The fire department arrived approximately 10 to 15 minutes after Mr. Wall's call.

Mr. Early confirmed that the contractors hired by G.S.A. were putting new air-conditioning units into the vaults and were familiar with the fire safety regulations in the building.

Mr. Early also stated that he did not know of any fire safety violations in the building or on the complex. He also stated that everyone working on the complex had a good working relationship. He does not suspect arson in this case.

At approximately 1530 hours a gentleman approached the complex and identified himself as Anthony Ardino, an employee of film vault B, (tel. # 426-6056), and he wanted to enter film vault B to secure the celluloid nitrate film taken out of the vaults prior to the fire. The ranking fire official on the scene gave his approval to enter this adjacent building. Capt. S. Stewart, Zone 3 Commander, was advised of our entering the film vault to secure this highly flammable film.

Upon entering the vault B building, Mr. Ardino secured the left-out film into various vaults. He then asked if he could check the temperature in all of the vaults, so that he could make log entries in the logs which were maintained outside of each individual, internal vault. While he was making the vault temperature checks, I noted that all of the individual vaults, offices, and hall had individual automatic sprinkler systems in them. It was learned that each vault also had individual "blow out panels" in each vault. The vaults individually constructed of cinder blocks with steel doors are approximately 6' x 10' in size. They are heated and cooled to a temperature of 50 to 60 degrees year-round. Each individual vault can activate its own sprinkler system. Also all individual vault sprinkler systems can be activated from outside each door as a safety feature. It was further noted that hand carried water and chemical fire extinguishers are located near the entrance ways. The last fire extinguisher inspection was on 9-28-78. Mr. Ardino was asked how a fire of this magnitude could happen with all the fire safety measures. I mentioned to him that if only a few vault doors were open that the fire could have been contained in that small area where it started. I got a feeling from his remark that it was possible that more vault doors had been open than necessary and a chain reaction had taken place.

See report from Zone 3, Z3-1938-78, and Records and Control Center Report, 033165.

  
J. T. Hockey  
Sergeant,  
Staff Duty Section

## PILOT PROJECT, TELEPHONIC OFFENSE &amp; INCIDENT REPORT (Check all appropriate boxes below)

1. <input type="checkbox"/> ORIGINAL	4. <input type="checkbox"/> THEFT	7. <input checked="" type="checkbox"/> CRITICAL	10. <input type="checkbox"/> W/V TRAFFIC ACCIDENT	13. <input type="checkbox"/> FLASH LOCKOUT
2. <input type="checkbox"/> OFFENSE	5. <input checked="" type="checkbox"/> GOVT. PROPERTY	8. <input type="checkbox"/> NON-CRITICAL	11. <input type="checkbox"/> INCOMPLETE	14. <input type="checkbox"/> SUSPICIOUS PERSON(S)
3. <input type="checkbox"/> INCIDENT	6. <input type="checkbox"/> PERSONAL PROPERTY	9. <input checked="" type="checkbox"/> PRELIMINARY	12. <input type="checkbox"/> FOLLOW-UP	15. <input type="checkbox"/> ARREST
16. COMPLAINT NO. 003165	17. DAY/DATE/TIME OCCURRED 12/7/78, approx. 1205 hrs.	18. REPORT RECEIVED (Date/Time) 12/7/78 1730		
19. LOCATION OF OFFENSE/INCIDENT (Building name, street address & room number) Film Vault - A Suitland Reservation, Suitland, Md. 20023		20. FPO PROFILE AND CSA NUMBER 11N1310025 AG		
		21. HOURS AVAILABLE N/A	22. AGE C	
23. JURISDICTION R - EX <input type="checkbox"/> CON <input type="checkbox"/> PROP <input type="checkbox"/>	24. OFFENSE/INCIDENT REPORTED Fire	25. OFFENSE/INCIDENT VERIFIED Fire		26. C
27. PERSON REPORTING INCIDENT (Name) Mrs. Annie Ward	28. EMPLOYED BY (Business name, address, and ZIP code)		29. TEL. # Unk	
30. COMPLAINANT/VICTIM'S NAME (Last, first, middle) Same as # 27		31. COMPLAINANT/VICTIM'S HOME ADDRESS Unk		32. COMP. / TIM'S PHON
33. COMP. / VICTIM'S AGE	34. SEX	35. COMPLAINANT/VICTIM'S BUSINESS ADDRESS		36. COMPLAINANT/VICTIM'S BUSINESS PHONE
37. VICTIM TAKEN TO (If injured)	38. TRANSPORTED BY	39. DESCRIPTION OF INJURIES See log		40. CONDITION Unk
41. TRACEMARKS OF SUSPECT(S) (Action or conversation) N/A		42. CRIME W/O (Include tools used and point of entry) N/A		
43. CODE:	W - WITNESS	P - PARENT	G - GUARDIAN	
CD NAME	AGE	BEST CONTACT ADDRESS	BEST PHONE	OTHER PHONE
44. CODE:	S - STOLEN	R - RECOVERED	D - DAMAGED	
CD	QTY	DESCRIPTION (Spec. color, model, material, condition)	SERIAL NO.	WHERE LOCATED
A				
B		N / A		
C				
45. NAME OF PERSON ARRESTED	46. ALIAS	47. SOCIAL SECURITY NO.	48. RACE	49
50. HOME ADDRESS N / A	51. AGE	52. PLACE OF BIRTH	53. DATE OF BIRTH	
54. HEIGHT	55. WEIGHT	56. EYES (Color)	57. HAIR (Color and style)	58. COMPLEXION
59. DISTINGUISHING CHARACTERISTICS (Scars, limp, tattoos, etc.)			60. CHARGED WITH	
61. NARRATIVE (Continue on separate sheet, if necessary) At approx. 1205 hrs. Mrs. Annie Ward, supervisor of Film Vault "A", entered F O B # 3, Base B hq. and stated there was a fire in Film Vault "A" located behind F O B # 5. The fire dept. was called by an unknown source. And at approx. 1215 hrs. the Silver Hill Fire Dept. responded. During the same time a series of explosions was heard from the area of fire. All available P. P. S. units from Suitland responded to control traffic and spectators near the scene of the fire. At approx. 1236 hrs. other fire units began to respond including a crash foam truck from And. Air Force Base. Approx. 60 fire units responded to the scene. At approx 1240 hrs. TAC and SEU units responded to aid and assist with the traffic				
62. ZONE CONTROL NUMBER 23-1988-78	63. OTHER POLICE DEPT. NUMBERS P. G. County, Md. State & Md.	64. REPORT WRITER Park		
65. DISTRIBUTION (List by symbol)				
66. INVESTIGATING OFFICERS Sgt. Anderson & FPO, K.J. Barnes	67. SIGNATURE OF APPROVING OFFICIAL, ZONE/RCC		68. REPORT DATE 1	
69. REPORTING OFFICER Sgt. Anderson	70. UNIT, SECTOR, PHONE NO. Zone 3, 7637580	71. COMPUTER INFORMATION (If other, specify) <input type="checkbox"/> MCIC <input type="checkbox"/> OTHER		
72. ACCIDENT TIME NOTIFIED <input type="checkbox"/> C.O. <input checked="" type="checkbox"/> R3	73. DATE/TIME TYPED 12/7/78	74. L.E. AGENCIES NOTIFIED <input checked="" type="checkbox"/> FBI <input checked="" type="checkbox"/> STATE POLICE <input checked="" type="checkbox"/> LOCAL POLICE P.O. <input type="checkbox"/> OTHER EPS	75. TIME 2nd	76. T. T. SENT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
77. RA 3		78. STATUS <input checked="" type="checkbox"/> OPEN <input type="checkbox"/> CLOSED <input type="checkbox"/> S		
TO BE COMPLETED BY CSA OFFICIALS ONLY				
FPO ZONE OFFICE	81. DATE/TIME THIS FORM RECEIVED	82. PERSON NOTIFIED		83. DATE AND TIME
EDGE MANAGER OR FPO SUPERVISOR	84. DATE/TIME THIS FORM RECEIVED	85. PERSON NOTIFIED		86. DATE AND TIME
OTHER NOTIFICATION	87 (Identify private firms, pawn shops, etc.)			

## PILOT PROJECT, TELEPHONIC OFFENSE &amp; INCIDENT REPORT (Suspect information)

84. <input type="checkbox"/> ORIGINAL	81. <input type="checkbox"/> THEFT	84. <input type="checkbox"/> CRITICAL	87. <input type="checkbox"/> M. - TRAFFIC ACCIDENT	100. <input type="checkbox"/> FLASH LOCKOUT
89. <input type="checkbox"/> OFFENSE	82. <input type="checkbox"/> GOVT. PROPERTY	85. <input type="checkbox"/> NON-CRITICAL	88. <input type="checkbox"/> INCOMPLETE	101. <input type="checkbox"/> SUSPICIOUS WANTED PERSONS
<input type="checkbox"/> INCIDENT	93. <input type="checkbox"/> PERSONAL PROPERTY	96. <input type="checkbox"/> PRELIMINARY	99. <input type="checkbox"/> FOLLOW-UP	102. <input type="checkbox"/> ABANDON
103. COMPLAINT NO. 003155		104. WANTED FOR		105. LOCATION
106. TIME OF OFFENSE		107. DATE	108. NAME OF WANTED PERSON	
109. ALIAS				
VEHICLE INFORMATION			DESCRIPTION OF SUBJECT NO. 1	
110. COLOR	111. YR.	118. RACE	119. SEX <input type="checkbox"/> M <input type="checkbox"/> F	120. AGE
				121. HEIGHT
				122. WEIGHT
				123. EYES (Color)
112. MAKE	113. BODY STYLE	124. HAIR (Color & style)		125. COMPLEXION
114. LICENSE NUMBER <input type="checkbox"/> DC <input type="checkbox"/> MD <input type="checkbox"/> VA <input type="checkbox"/> OTHER				
115. VIN				
116. ADDITIONAL INFORMATION				
117. REPORTING OFFICER ZONE BADGE NO.				
118. DETAILS				
DESCRIPTION OF SUBJECT NO. 2			DESCRIPTION OF SUBJECT NO. 3	
119. NAME AND/OR ALIAS OF WANTED PERSON			126. NAME AND/OR ALIAS OF WANTED PERSON	
128. RACE	129. SEX <input type="checkbox"/> M <input type="checkbox"/> F	140. AGE	141. HT.	142. WT.
				143. EYES
144. HAIR (Color, style)		145. COMPLEXION		146. HAIR (Color, style)
				147. COMPLEXION
148. DISTINGUISHING CHARACTERISTICS (Score, temp, etc.)			149. DISTINGUISHING CHARACTERISTICS (Score, temp, etc.)	
147. HAT (Color, type)		148. COAT (Color, type)		149. HAT (Color, type)
				150. COAT (Color, type)
149. TROUSERS - DRESS		150. SHIRT - BLOUSE - SWEATER		149. TROUSERS - DRESS
				150. SHIRT - BLOUSE - SWEATER
151. TIE (Color, type)		152. SHOES - SOCKS		151. TIE (Color, type)
				152. SHOES - SOCKS
153. ARMED (If yes, give weapon type) <input type="checkbox"/> NO <input type="checkbox"/> YES			153. ARMED (If yes, give weapon type) <input type="checkbox"/> NO <input type="checkbox"/> YES	
154. DIRECTION AND METHOD OF ESCAPE (Circle direction and check method) N S E W O H <input type="checkbox"/> ON FOOT <input type="checkbox"/> IN AUTO			154. DIRECTION AND METHOD OF ESCAPE (Circle direction and check method) N S E W O H <input type="checkbox"/> ON FOOT <input type="checkbox"/> IN AUTO	
155. PROPERTY TAKEN (If money, specify amount)			155. PROPERTY TAKEN (If money, specify amount)	
156. DETAILS			156. DETAILS	

## 127. REMARKS

and spectators. Approx. 19 P. G. county police cars and equipment were on the scene to control the traffic on Suitland Road. At 1330 hrs. P. G. County police and rescue squad began to evacuate approx. 50 residents from the Suitland Hall Apts. across from the fire scene and to transport them to Suitland Recreation Center for safety.

Later it was learned that Mrs. Annie Ward and two other civilians were transported to the Greater South East Community Hospital and treated for smoke inhalation. Three Firemen were treated for first and second degree burns and for smoke inhalation. Seven other firemen were taken to P. G. Hospital and treated for smoke inhalation.

At approx. 1515 hrs. the fire was under control.

On the scene were Capt. Samuel Stewart, Zone 3 Commander; Mr. Dick Meyers, Deputy Division Director of Archives Division; Mr. Tony Arduinc Film inspector for the Library of Congress; and other G. S. A. officials.

Sgt. Alphonza Anderson of Zone 3 was in charge of FPSD operations at the scene.

(See attached sheet)

## EMERGENCY REPORT

BUILDING NAME Film Vault A		BLDG. NO. 100766	FIELD OFFICE ...	DATE 12-7-78
<input type="checkbox"/> GOVERNMENT OWNED		<input type="checkbox"/> LEASED		POP. AFFECTED
OUTAGE COST Unknown	OVERTIME PAID Unknown	NATURE OF TROUBLE		OUTAGE TIME 12:15 p.m.
SERVICE IS EXPECTED TO BE RESTORED BY -- Unknown		<input type="checkbox"/> HVAC <input type="checkbox"/> ELECTRIC <input type="checkbox"/> WATER <input type="checkbox"/> OTHER <input type="checkbox"/> GAS <input type="checkbox"/> FLOOD <input type="checkbox"/> FIRE SYSTEMS		OUTAGE DATE 12-7-78
NATURE OF OUTAGE (Explanation)				

Fire occurred in Film Vault A on Thursday, December 7, 1978, at approximately 12:15 p.m. Burning nitrate film emitted toxic nitrate fumes, which caused evacuation of approximately 100 people from adjacent apartments and businesses. Due to explosive nature of film, which made for hazardous conditions inside the building, firemen fought the fire from outside the building, bringing it under control. Eleven firemen and one civilian were hospitalized, with no serious damages sustained. No major structural damage is believed to have been done to the building. Approximately 30% of the film stored was able to be salvaged. Intense heat from the fire caused damage to several cars parked near the film vault.

## CORRECTIVE ACTION INITIATED

Cause of fire is currently under investigation.

AGENCY(S) OCCUPYING BUILDING	OCCUPANT AGENCIES NOTIFIED	WILL EXCUSE
National Archives Records	National Archives	Yes

A COPY OF THIS REPORT IS REQUIRED BY MAINTENANCE AND UTILITIES BRANCH (3PM) FOR ANY BUILDING REPORTING AN EMERGENCY. A COPY IS REQUIRED BY SPACE MANAGEMENT DIVISION (3PR) FOR LEASED BUILDINGS. AN OFFICIAL FILE COPY OF THIS REPORT IS REQUIRED BY SUPPORT MANAGEMENT BRANCH (3PAS).

## DISTRIBUTION

- |   |   |  |   |
|---|---|--|---|
| <input type="checkbox"/> MAINTENANCE AND UTILITIES BRANCH - 3PM | <input type="checkbox"/> SUPPORT MANAGEMENT BRANCH - 3PAS | <input type="checkbox"/> AREA MANAGERS   | <input type="checkbox"/> BUILDING MANAGER                                     |
| <input type="checkbox"/> SPACE MANAGEMENT DIVISION - 3PR        | <input type="checkbox"/> REGIONAL COMMISSIONER - 3P       | <input type="checkbox"/> APPLICABLE SHOP | <input checked="" type="checkbox"/> ACCIDENT AND FIRE PREVENTION BRANCH - 3DA |

SIGNATURE W. F. Slign	TITLE Acting Buildings Manager	CCR. SYMBOL 3FSSG	DATE 12-12-78
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APPENDIX 2.—OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION  
 REVIEW OF ARCHIVES FILM LABORATORY AND VAULTS

U.S. DEPARTMENT OF LABOR  
 Occupational Safety and Health Administration  
 WASHINGTON, D.C. 20210



Office of the Assistant Secretary

SEP 13 1979

Honorable Richardson Preyer  
 Chairman, Subcommittee of  
 Government Information and  
 Individual Rights  
 Committee on Government Operations  
 House of Representatives  
 Washington, D.C. 20515

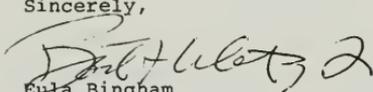
Dear Chairman Preyer:

In my June 19, 1979 letter regarding the requested evaluation survey of selected National Archives nitrate film handling facilities you were provided with four preliminary findings of major importance and promised a full report which was being prepared.

The enclosed full report contains those four major findings plus a fifth one regarding implementation of fire safety policy and procedure for the nitrate film exposure problems.

We apologize for the delay in completing the full report but hope that it provides the information you need.

Sincerely,

  
 Eula Bingham  
 Assistant Secretary  
 Occupational Safety and Health

Enclosure

A SURVEY REPORT

OF

NITRATE FILM FACILITIES

OPERATED BY THE

NATIONAL ARCHIVES

GENERAL SERVICES ADMINISTRATION

June 14 and 15, 1979

Prepared by: Office of Federal Agency Safety and Health Programs  
Occupational Safety and Health Administration  
U. S. Department of Labor

## FOREWORD

This report responds to a request from Congressman Richardson Preyer to Assistant Secretary Eula Bingham, asking that OSHA personnel investigate certain aspects of the Suitland nitrate film vault fires.

The letter of May 4, 1979, requested OSHA to examine the National Archives facility, as there were questions concerning the health and safety of both Federal employees and members of the general public who might find themselves in the vicinity of the film laboratory. Congressman Preyer also wanted to know if GSA/NARS had complied with OSHA's incident reporting requirements, and the extent to which the Suitland, Maryland and other National Archives facilities have been reviewed and approved by GSA fire safety personnel. The report is structured to address these specific requests, with a summary of the findings followed by detailed findings and discussion.

Meetings were held with GSA representatives on June 8, June 14 and June 15. A draft report was requested for June 17. Because of this short time frame, much of the documentation needed, and requested, has not been made available for study. Copies of the two GSA Ad Hoc committee reports of the film vault fires were not given to OSHA's investigators, although they were made available for review at GSA headquarters.

## CONTENTS

- I Summary of Findings
- II Discussion of Findings
  - A. General, Suitland Film Vaults
  - B. Deficiencies in Suitland Fire Investigation Reports
  - C. Archives Film Laboratory
    - 1. Figure One, Film Flow Process, Archives Film Laboratory
- III Exhibits
  - A. National Archives Film Laboratory, Discrepancies
    - 1. Figure Two, Floor Plan, Film Laboratory
  - B. Building C, Suitland, Discrepancies
  - C. Report of Technical Fire Prevention and Fire Protection Inspection, Nitrate Film Vaults, Suitland, Maryland, August 23, 1957.
  - D. Survey Report, Air-conditioning - Safety. Film Vaults A, B and C. Suitland Reservation, Suitland, Maryland. GS-00B-01321. May 7, 1973.
  - E. Film Vaults A, B and C, Suitland, Maryland. Accident and Fire Prevention Survey Report, January 17, 1977.
  - F. Automatic Sprinkler Protection, Cellulose Nitrate Motion Picture Film Storage Building A, Suitland, Maryland. October 17, 1977.
  - G. Attendant's Daily Report on Temperature Readings, Building C. and Maintenance Logs.

## CONTENTS (Cont.)

- H. Fire Prevention and Fire Protection for Warehouses,  
PBS P 5920.3 June 24, 1960. Promulgation Order page.
  - I. Page 6, Chap 7-11, PBS P 5920.3, December 15, 1976.
  - J. Building Fire Safety Criteria, PBS P 5920.9,  
July 27, 1965. Selected pages.
- IV Appendixes
- A. List of Documents Reviewed at GSA, June 8, 1979.
  - B. List of Documents Requested of GSA on June 8, 1979,  
and Results.
  - C. List of Documents Obtained Independently of GSA.
  - D. List of Documents Requested of GSA on June 13, 1979,  
and Not Obtained.

## I. SUMMARY OF FINDINGS

## A. Current Status of Health and Safety of the Archives Film Laboratory and Vaults.

1. There are deficiencies in the physical structure of the film laboratory, its location, and the fire suppression and fire exit requirements. In the event of fire, these deficiencies could contribute serious harm to both Federal employees and the public. See Part II C for discussion.
2. The laboratory processing, the film load, and its handling are such that it is possible to have a serious nitrate film fire.
3. Although the decomposition products of nitrate film are known to be toxic, there have been no industrial hygiene surveys of employees who work with and are exposed to this film.
4. The structural deficiencies in the Suitland film vaults were discussed in GSA reports of 1957 and 1973. Very little upgrading resulted from the reports, except for the aborted deluge system for Building A vaults. Since 1977, GSA plans called for major corrections, but these have not been completed. At this time, the facility is still exposed to the hazard of nitrate film fires. See Part II A for discussion.
5. An elaborate GSA policy and administrative procedure relating to fire safety has still not been implemented in the Archives operations; with the result that circumstances could again set the stage for another fire or explosion. See Part II B for discussion.

## B. GSA/NARS Compliance with OSHA Incident Reporting Requirements.

29 CFR 1960.8 (a) requires that Federal Agencies report employment accidents "which involve property damage of \$100,000 or more" within two (2) working days. Such reports, while directed to the Secretary of Labor, are received by the Office of Federal Agency Safety and Health Programs. Inquiry of the statistician at this office indicates no record of a report of either fire.

## C. Extent of GSA Review and Approval of Facilities

1. Documents to establish this review were requested from GSA (See Appendix B and Appendix D). It was not possible to establish that there had been adequate review and approval of the facilities and changes in operations. It was possible to establish that thorough surveys of the major vault deficiencies had been made in 1957 and 1973 (See Exhibits C and D). Thus, GSA had been apprised of the deficiencies.
2. The two prime opportunities for the GSA Accident and Fire Prevention activity to review the documentation of the hazards and deficiencies, and the inaction by NARS, were in the fire investigation reports of August 1977 and December 1978. The August 1977 report did not note that a GSA Accident and Fire Prevention survey of January 1977 had identified deficiencies (See Exhibit E). This survey report referenced PBS P 5920.3, Building Fire Safety Criteria, but did not reference PBS P 5920.1, Fire Prevention and Fire Protection for Warehouses (See Exhibits H and I.) The August 1977 fire investigation report was limited and inaccurate, but was accepted by GSA. The December 1978 fire investigation report was in greater depth, and attached documentation illustrating the lack of action on GSA Accident and Fire Prevention reports, but the recommendations did not address this aspect.
3. The GSA Suitland office could not provide most of the forms shown in Appendix D, or when provided, these were either inaccurate or incomplete. GSA buildings management was not complying with GSA mandated procedures and forms. This inaction may have permitted the known deficiencies to remain unabated.

## II. DISCUSSION OF FINDINGS

## A. General, Suitland Film Vaults

It would appear that GSA had adequate warning of the deficiencies in the structural aspect and operational procedures of the Suitland film vaults.

The GSA fire prevention report of August 23, 1957, discussed the vaults' physical condition, and made numerous recommendations to upgrade them; including automatic sprinklers, alarms, revised venting, etc. These recommendations also addressed the overload in the vault storage. See Exhibit C for the full report.

The GSA air-conditioning survey of May 7, 1973, concluded that the air-conditioning system was inadequate. See Exhibit D for the full report.

The end result was that the film vaults were provided with inadequate cooling to prevent decomposition of the film, the physical facility was inadequate to contain or suppress a fire, and the operational procedures were such that vault overloads were routine.

It would be supposed that, knowing that the factors for a fire or explosion existed, the Archives management would perfect the Facility Self Protection Plan required by GSA of all Federal agency tenants in GSA buildings. A self protection plan would have called for annual fire alarm tests and evacuation drills, with fire company officers invited to witness the exercise. However, there was no self-protection plan, there apparently was no regular testing of the system (as no documents could be found to attest to this), and there had been no liaison with the county fire department.

## B. Deficiencies in the Suitland Fire Investigation Reports

Both of the GSA fire investigation reports were prepared by GSA personnel, with no representation from other agencies. The December 1978 report panel included an employee representative, who filed a dissenting minority report.

Our review of the reports indicated that the panels had left unanswered a number of questions concerning the fires and the actions occurring prior to the fires.

1. The open spray head system specified in the Universal Studios acceptance letter was never installed.
2. GSA could not provide documentation on the acceptance tests of the system and alarms. It is common practice for the building owner to require and document acceptance tests. GSA requires this in its own contracts (See Contract No. GS03B-78158, pp 15400-4, item 15.2).
3. There was no discussion as to who inspected the system annually, and to what extent. There was no review of deficiencies found in such inspections, or whether problems were corrected.
4. The GSA survey of January 1977 recommended that the waterflow alarms be connected to the Communications Center at FB 3. Failure to take this action delayed the December 1978 alarm.
5. The GSA regional Accident and Fire Prevention inspectors apparently believed that Building A had a full automatic deluge spray system (See Exhibit E, top of pp. 5 and the fire investigation report for the August 1977 fire). However, it has been acknowledged by GSA that Building A's system was an aborted deluge system ending in standard closed head sprinklers. The positioning of the heads did not meet NFPA standard requirements, as the installation resulted in inadequate coverage.
6. A similarly inadequate system was installed in Buildings B and C. The specifications called for a full deluge system (See Contract No. GS-03B-78158, pp 15400-4, item 12.1). The December 1978 fire investigation report did not address the reasons for this change.
7. By October 1977, regional GSA Accident and Fire Prevention personnel were aware that the system in Building A was not a full deluge open spray head system, as they requested that GSA buildings management remove the fusible link in each head which would make it an open head system (See Exhibit F). Considering that the contract specifications called for a deluge system in Buildings B and C, and as GSA knew that Building A had not been built to specifications, it would seem that GSA should have more closely monitored construction. However, this did not happen.

Building C, however, had its system installed without deluge valves, so that the system was a standard wet pipe system. Thus, if Building A had been similarly constructed, removal of the fusible links was not possible.

8. NARS officials stated that Building A vault temperature records and log of calls to GSA buildings management were destroyed by the fire. However, they provided the records for Building C, which are probably representative of the record-keeping. The record consisted of three pages of calls to maintenance, with vast gaps in the dates, and the records of daily individual vault temperatures for the period of November 1978 to June 1979. A hand-written maintenance log was also provided. A sample of this is shown in Exhibit G.

The daily temperature record showed that on November 13, 14, 15 and 16, 1978, Vaults 14 and 15 were running with elevated temperatures, over the 55 degrees upper limit desired. The log of NARS calls to maintenance does not cover this period. However, the maintenance log shows that work was done on Building A and B compressors on the 13th, but nothing is shown for Building C. There is no record of work done on any of the compressors for November 14, 15 or 16. The next maintenance log entry provided is for November 18, with no record of work on Building C compressors.

If the vaults were running warm through this cooler part of the year, as indicated by the daily temperature logs, and maintenance was not shown as being performed, then the condition during the hotter months may be surmised to be worse, with a distinct possibility that decomposition of the film would have been accelerated.

Further, it should be noted that the vaults have individual chiller units and fans, and these can be turned off by anyone in the building. It was alleged to be a normal practice for employees to turn them off when working in vaults.

9. Neither fire investigation report explored other aspects of the entire system of fire prevention and protection, such as:
  - (a) The delay in converting to safety film, when the Universal Studios contract specified converting each 100,000 feet when received.
  - (b) The retention of deteriorating film which had been copied. This practice was considered to be the cause of the August 1977 fire.
  - (c) The missing reports and inspections for the buildings and systems.
  - (d) The lack of coordination between GSA buildings management, GSA design and construction activities, GSA accident and fire prevention personnel and Archives management.

Many of these same system failures had been found in the OSHA evaluation of the GSA occupational safety and health program, as documented in the draft report, Evaluation Report On Occupational Safety and Health Programming Established and Operated By the General Services Administration, FY 1978.

10. GSA had published PBS P 5920.3, Fire Prevention and Fire Protection for Warehouses, on June 24, 1960 (See Exhibits H and I). GSA PBS P 5920.9, Building Firesafety Criteria, was published on July 27, 1965 (See Exhibit J). Neither fire investigation report discussed in detail the deficiencies of the film storage facilities in light of the GSA requirements published in these two manuals. PBS P 5920.3, Chapter 4, requires automatic sprinkler systems. Appendix E discusses sprinkler system tests and records, with a requirement that records be maintained. PBS P 5930.3 also requires that each facility have a self protection plan, including inspections, complete with various inspection records (See Exhibit H). Neither fire investigation report contained any documentation indicating compliance with these GSA manuals.

C. Archives Film Laboratory

The physical discrepancies found in the structure, location and equipment in the film laboratory are discussed in Exhibit E.

The chief of the Photographic Services Branch said that his people were used in various capacities for differing operations, including the processing of safety film. He could not provide precise quantities of film being processed. Our approximation is based on observed film on hand, statements as to film feet processed, received, or shipped, and that the OSHA survey was probably conducted under "best possible" conditions.

Both the officials here and at Suitland denied that deteriorating film was processed into safety film, yet it has been alleged that such film, returned from the laboratory, was the film suspected of starting the Vault 19 fire in Building C in August 1977.

Suitland officials stated that they inspect all film shipped, and ship about 75 cans every two days, approximately 10 cans per box, in cardboard boxes.

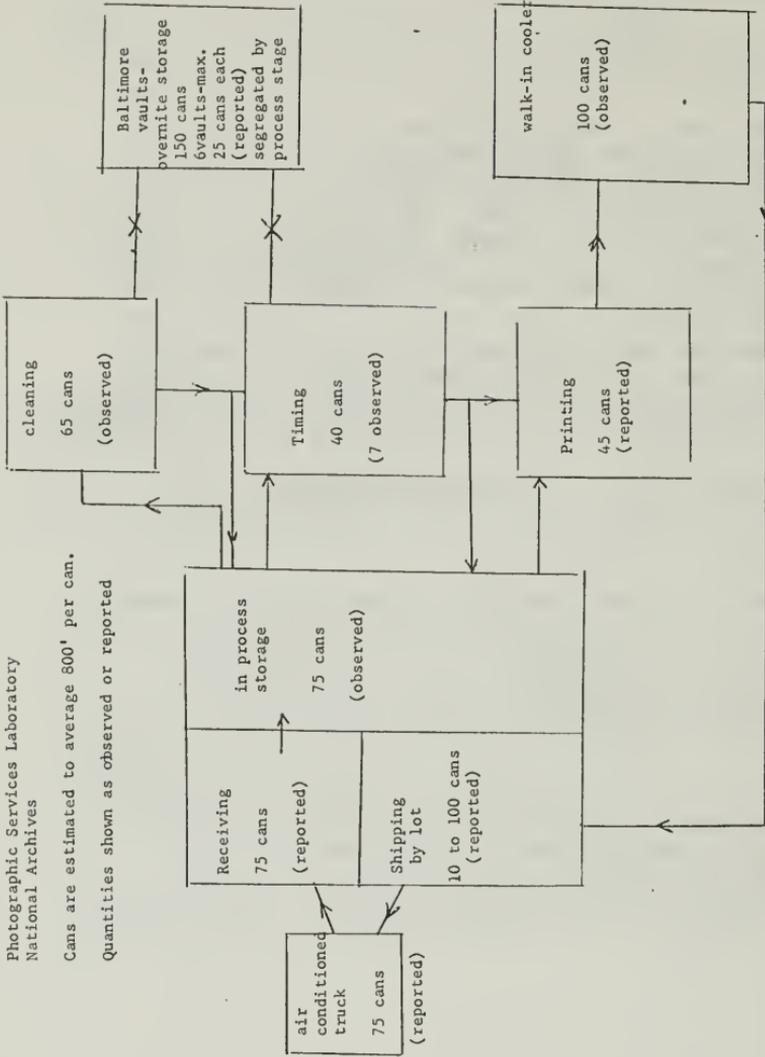
The film would arrive at the Archives film laboratory at about 11 a.m., and the film to be returned would be ready, also packed in cardboard boxes. The incoming shipment, the outgoing shipment, and the in-process storage are all in the same room. Approximately 75 cans were observed on hand during the survey, at approximately 9:30 a.m.

From this point, the film is placed on open shelves for in-process storage, and moved to the film cleaning machine, which may process all by noon, using a hydrocarbon automatic cleaning machine. This operation involves 1-2 employees. The cans are stacked on an open table in front of the machine. This point had approximately 65 cans at the time of our survey.

Figure One

Flow Process  
Nitrate Film Cans  
Photographic Services Laboratory  
National Archives

Cans are estimated to average 800' per can.  
Quantities shown as observed or reported



From the cleaning operation the film moves to one of two timing rooms, which has four timers in each room. Only one was in operation, with one operator and seven cans of film on hand. The process has a maximum of 5,000 feet per day. With eight people working 40,000 feet of film could be processed daily, and on-hand stock would probably be some 40 cans. Thus, a optimal cleaning operation would take two days to process one shipment.

The film then goes to the printing rooms, of which three of seven rooms are used for nitrate film work. This may involve three people and process 15,000 feet per day per room. Maximum probable film on hand would be 15 cans per room, assuming a one day float.

Between each operation, depending on the float involved, the cans may be stored in the shipping and receiving room, on open metal shelving.

Each day, according to NARS officials, all the nitrate film is removed from each storage or process area and placed in vaults. One set of vaults is named the "Baltimore" vaults, a set of six vaults capable of accommodating 25 cans each. The vaults have a stack vent connected to a common exhaust duct used to vent various machines and rooms processing the film (See Exhibit A).

A secondary vault, a large walk-in refrigerator unit, is also used for nitrate film storage, although primarily maintained for safety film. This walk-in storage vault had 10 cardboard boxes of nitrate film, with approximately 10 cans per box.

Figure One plots the process flow in terms of cans per location. Without a detailed study, it is not possible to assess the actual flow, but the plotted flow indicates a potential of approximately 250 cans, largely located in the shipping and receiving area, with a maximum potential of 500 cans (if problems develop in the processing). This equates with 1/4 to 1/2 of the contents of one of the Suitland storage vaults.

Before reviewing possible conditions under which nitrate film fires might occur in the film laboratory, it may be necessary to review pertinent characteristics of nitrate film fires.

1. Once ignited, the combustion proceeds 15 times as fast as an ordinary paper or wood fire.
2. With this speed of combustion, intense pressures are generated by the quickly expanding gases, gauged in tests as up to 18 pounds per square inch.
3. These expanding gases are highly toxic, consisting largely of carbon monoxide and oxides of nitrogen; such as nitric oxide, nitrogen dioxide, and nitrogen tetroxide; from one to nine percent by volume (See Tables on following page).

When these characteristics are considered, the source of ignition becomes relatively unimportant. Whether the fire begins because of spontaneous combustion (not too probable if film is inspected), accidentally, by laboratory procedures (possible), or if a fire begins in other material and then involves the film (most probable), the end result would be the same.

A film fire in the laboratory process would quickly involve other materials and film, instantly forcing toxic gases out into the corridors and the exit stairways. Both laboratory employees and the public or other NARS employee in the snack bar could be trapped.

A film fire in the "Baltimore" vaults could conceivably relieve or vent hot expanding toxic gases into the film laboratory.

A fire in the walk-in cooler, with its lack of ventilation or relief vents, could result in a major explosion.

None of this is improbable, considering the speed with which fire proceeded in the Suitland vault fires, and considering the casualties suffered in the Cleveland film fire of 1929. Ref. Appendix C. Item 5.

TABLE I†

## Gases Evolved in Flameless Combustion of Nitrate Film

Volume of combustion chamber, 8 to 27 cubic ft.  
Weight of film, 2 lbs. per cubic ft. of chamber.

Gases	Per cent by volume
Nitric oxide (NO)	1.4-8.2
Nitrogen dioxide and tetroxide (NO <sub>2</sub> , N <sub>2</sub> O <sub>4</sub> )	6.9-8.9
Carbon monoxide (CO)	17.7-59.1
Carbon dioxide (CO <sub>2</sub> )	21.3-24.5
Oxygen (O <sub>2</sub> )	none
Hydrogen (H <sub>2</sub> )	0.9-3.2
Methane (CH <sub>4</sub> )	1.0-2.7

†From "Proceedings of a Board of the Chemical Warfare Service appointed for the purpose of investigating conditions incident to the disaster at the Cleveland Hospital Clinic, Cleveland, Ohio, on May 15, 1929." U. S. Government Printing Office, Washington, 1929.

TABLE II\*

Toxicity of the More Important Gases Evolved  
in Combustion of Nitrate Film

Symptoms	Parts per Million Parts of Air		
	Nitrogen Oxides	Carbon Monoxide	Carbon Dioxide
1. Slight symptoms after several hours or maximum concentration for 8 hours exposure	30-100	100-200	5,000-30,000
2. Maximum concentration tolerated for 60 minutes without serious disturbance	50-100	150-900	33,000-60,000
3. Dangerous to life in 30 to 60 minutes	100-150	1500-2000	33,000-80,000
4. Kills most animals in short time	240-700	1000 or over	50,000-300,000

\*From Jacobs, M. B., "The Analytical Chemistry of Industrial Poisons, Hazards and Solvents," Interscience Publishers, Inc., New York, N. Y., 1941 and 1949.

EXHIBIT A  
National Archives Film Laboratory

The National Archives building is of masonry, fire-resistive construction and is equipped with a wet-type sprinkler system and a fire alarm system. It should be noted that a fire alarm pull box could not be located on the basement floor.

Exit facilities from the basement floor consist of two enclosed stairways located in approximately the middle of the corridor. The stairways being located in this manner results in a dead-end corridor of approximately 100 feet in length. One stairway contains combustible storage at the sub-basement level; the second stairway is missing a fire door at the basement level.

There is a snack bar lunch room area located at the end of one of the dead-end corridors. The only means of egress from this area is to pass by the space occupied by the film laboratory enroute to the enclosed stairs. If a fire occurred in the film laboratory area, it is possible that patrons attempting to escape from the snack bar lunch room area would find their means of egress filled with toxic gases.

The film laboratory occupies approximately 4,660 square feet of the basement floor of the National Archives building. Some of the film that the laboratory stores and handles is of the cellulose nitrate type. A sketch of the film laboratory space is attached as Figure Two.

Exit facilities. Exit facilities from the laboratory area consist of a door leading to the corridor from the office and a hallway leading to the corridor from the entrance of the print area. Neither of these doors swing in the direction of exit travel. There is a door leading to the outside moat area but this door is kept locked. There is also a set of double doors leading to the corridor from the receiving-holding area. However, these doors are blocked.

The timing room has one means of egress. There should be two means of egress from rooms where more than two persons are working. At times, there are four employees working in the timing room.

The dark rooms, long travel distances, and lack of a sufficient number of exits would make it quite difficult to escape from this area in an emergency.

Fire suppression equipment. The sprinkler system is operative but is not designed for "extra hazard". There are fire extinguishers provided in the area. However, they are of the CO<sub>2</sub> type rather than the water type. CO<sub>2</sub> would not be effective on a fire involving nitrate film.

Film handling. According to NFPA 40, not more than 20 rolls of nitrate film is to be outside of storage cabinets. It appears that more than 20 rolls of film are outside of the storage cabinets during various phases of operation. The nitrate film is stored overnight in metal cabinets. These cabinets are equipped with exhaust ventilation. However, the exhaust is vented into a duct which is common to other areas in the space occupied by the laboratory. It is possible that smoke or toxic vapors entering this common duct could be vented to other areas of the laboratory.

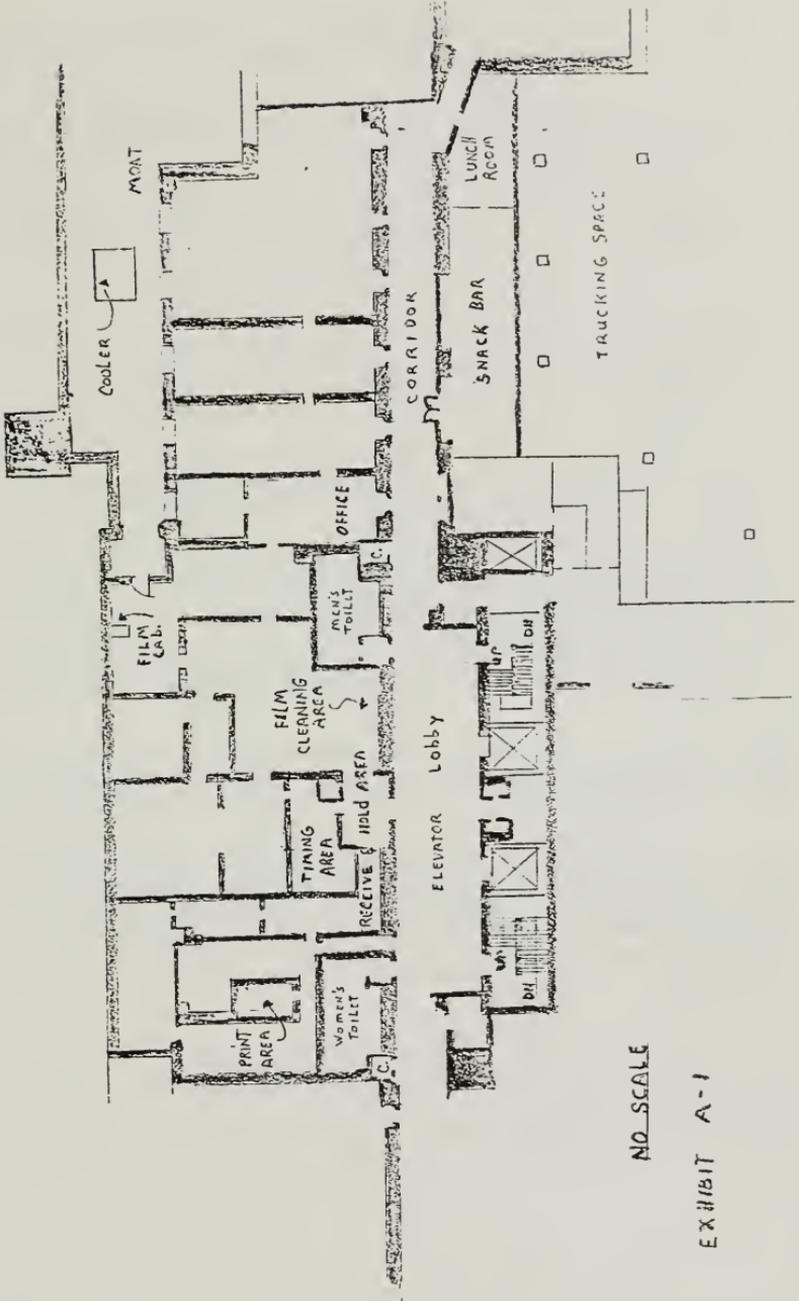
When storage cabinets are full, excess nitrate film is stored in a cooler located in the outside moat area. The cooler is not equipped with proper electrical wiring or fixtures, does not have a warning mechanism which indicates a malfunction, has no sprinkler protection, explosion vents, and presents an exposure hazard to the Archives building. This cooler should not be used for storage of nitrate film.

Summary of film laboratory deficiencies  
based on NFPA 40 - 1974

1. The sprinkler system at this time is designed for "ordinary hazard" which means sprinkler heads are installed on 100 sq. ft. spacing. The film laboratory is an extra hazard occupancy and the sprinkler system should be designed for "extra hazard" with sprinkler heads installed on 64 sq. ft. spacing.
2. The doors along the corridor of the film laboratory are not fire doors. These doors should be Class B self-closing fire doors which swing in the direction of exit travel.
3. Storage cabinets are at present vented into a common exhaust duct. The storage cabinets should be vented directly to the outside.
4. The cooler which is located in the moat area does not meet any of the requirements for the storage of nitrate film. The practice of storing nitrate film in the cooler should be discontinued.
5. Fire extinguishers located in the film laboratory are of the CO2 type. These extinguishers should be of the water type.
6. There should be at least two exits from every room where more than two employees are working. The timing room has one way out with as many as four employees working in the room at times.
7. The set of double doors to the corridor from the receiving-holding area are blocked. In order to comply with exit requirements, these doors should be kept clear, changed to self-closing Class B fire doors and rehung to swing in the direction of exit travel.

8. At this time there are no exit lights in the film laboratory. Exit lights should be placed over each exit from the film laboratory.
9. No fire alarm pull-box at the basement level of the Archives building could be found. It is imperative that occupants have early notification in case of a fire and the fire alarm system must be extended to include a fire alarm pull-box at the basement level.
10. Combustible storage is located at the sub-basement level in one of the stairways. This material should be removed.
11. A fire door is missing from one of the stairways at the basement level. This fire door must be replaced to maintain the integrity of the fire rated stair enclosure.
12. Both stairwells had their sub-basement doors blocked open, adding to the deficiencies in exit requirements.

Figure Two  
Archives Film Laboratory Floor Plan



NO SCALE

EXHIBIT A-1

EXHIBIT B  
Building C - Suitland, Maryland

Building C is a masonry, fire-resistive building which is used for the storage and handling of cellulose nitrate film.

Building C contains 27 vaults for the storage of nitrate film. Each vault is approximately 650 cu. ft. There are also two other rooms in the building which are used for viewing and inspection of the film. There is an exit on each end of the building plus an exit from one of the laboratory rooms.

The building is equipped with a wet-type sprinkler system. Originally, the system was to be of the deluge type. However, because of the lack of certain necessary accessories, the system was placed in service as a wet-type system. Storage shelves reach to the ceiling, above the sprinkler heads.

A wet-type system activates by melting of the fusible link in a closed sprinkler head. Water then flows to the specific location of the fire which fused the sprinkler head. This results in localized extinguishment of a fire. A deluge system, on the other hand, utilizes a detection device which quickly activates the deluge valve in the system to allow large quantities of water to flow into the fire through open type sprinkler heads. This results in large amounts of water being applied instantaneously to the entire protected area. With nitrate film, which has a fire spread rate 15 times that of ordinary combustibles, fast, total application would be preferred.

Even though a wet-type system is acceptable according to NFPA 40, a deluge system would be a much more effective means of extinguishing a fire that is likely to occur in the vaults. The system was originally designed to be of the deluge type.

When the sprinkler system at building C is activated, a water flow alarm rings a bell which is located at one end of the building. However, it could not be ascertained whether this bell has ever been tested. An alarm is also supposed to notify persons at federal building #3 when the sprinkler system activates. However, this alarm was not functional at the time of the fire in Building C.

Each vault is equipped with an explosion vent located on the outside wall. None of the vaults are equipped with decomposition vents. There is no forced air exchange.

The doors to the vaults are of heavy metal construction but are not self-closing Class B fire doors as required by NFPA 40.

There are large quantities of film stored in the vaults. The extent of the storage is such that the sprinkler system would not be adequate.

Vaults were to be kept at a temperature of approximately 55° F. Temperatures are recorded daily. See discussion and Exhibit G.

Summary of Building C deficiencies  
based on NFPA 40 - 1979

1. Although a wet-type spinkler system is acceptable, most of the hardware to make the system a deluge type is present. The system should be converted to a deluge type, as originally intended, to enhance protection of the vaults, by full, instant, directed water application.
2. The sprinkler system and alarms should be tested regularly to ensure proper operation.
3. The alarm to federal building #3 should be connected to facilitate prompt notification of an emergency.
4. There are no decomposition vents in the vaults. Although NFPA 40 permits explosion vents in lieu of decomposition vents, the explosion vents represent a principal source of heat gain. Decomposition vents should be installed in each vault to vent decomposition products of the nitrate film.
5. Doors to the vaults are not rated fire doors. These doors should be self-closing Class B fire doors.
6. The storage height of nitrate film in the vaults interferes with sprinkler head discharge coverage. Storage should be reduced to a height which is below the sprinkler head discharge pattern to ensure proper coverage of the sprinkler system. The standard sprinkler head does not discharge much water upward. The current system attempts to achieve an upward distribution by angling the discharge heads alternately. This technique has not been verified as adequate for film storage vaults.

## EXHIBIT C

OCT 10 1957

Director, Protection Division - PEP

PEP

Supervisory Fire Prevention Engineer - PEP

Report of Technical Fire Prevention and Fire Protection  
Inspection, Nitrate Film Vaults, Suitland, Maryland -  
August 23, 1957.

This report covers the technical fire prevention and fire protection inspection report made at the Nitrate Film Vaults located at Suitland, Maryland, on August 23, 1957. I was accompanied on this inspection by Mr. Rolf Mastroras, Protection Officer of Region 3. The following people were conferred with during the inspection:

- Mr. Todd Franton, Superintendent, Suitland Group
- Mr. Humbert Ridgeway, Asst. Supt. " "
- Mr. T. L. Ponsive, Captain, Suitland Group Guard Force
- Mr. Leon Hillman, National Archives, Supervisor, Nitrate Film Vault Buildings "A" and "B"
- Mr. Leslie Arnold, Library of Congress, Supervisor, Nitrate Film Vault Building "C"
- Mr. G. S. Jackson, Member of District Heights Volunteer Fire Department

The courtesy and assistance extended to Mr. Mastroras and me by these people are greatly appreciated.

The Inspection1. Purpose

- a. To determine the degree and extent of fire and explosion hazards that are reported to exist because of the storage and handling of nitrate film at Suitland, Maryland.
- b. To make corrective recommendations.

2. Location of the Nitrate Film Vault Buildings (See attached sketch)

- a. The three Nitrate Film Vault Buildings are located on an open space of ground in the north area of the Government-owned grounds on which the Suitland Group of Government-owned buildings is situated. This group of buildings, including the Film Vault Buildings, is operated by the General Services Administration.
- b. These Film Vault Buildings are also located approximately 300 feet east of the new U. S. Naval Photographic Interpretation Center

Director, Protection Division - FIP

Building, now under construction; about 200 feet northwest of Federal Office Building No. 4 (S.O.S. Bldg.); and approximately 150 feet from the heavy traffic on Saitland Road to the northeast, as well as filling stations and other structures on this road.

### 3. Construction Features of the Film Vault Buildings (See attached sketch)

- a. The Buildings- There are three identical 40 ft. X 60 ft. one story buildings, separated end to end by approximately 40 ft. of clear space. The exterior walls of each building are 8 inch cinder blocks and the roof and floors are reinforced concrete. The floor rests directly on the ground. Each building is divided into 27 nitrate film storage vaults, a film work room, an office and a corridor extending from end to end of the building. Each building roof has a 4 ft. overhang to prevent continued sun rays from reaching the exterior walls. The roofs are also constructed to accommodate about 1 inch of water on the roofs at all times. This water insulates the roof from the hot sun rays, thus helping to prevent a build-up of heat inside the film storage vaults. In addition, the underside of the roofs is insulated with a rock wool material.
- b. The Film Storage Vaults - There are 27 identical film storage vaults in each of three buildings. The interior dimensions of each vault are 15 ft. 9 in. long, 5 ft. 4 in. wide and 7 ft. 9 in. high. These dimensions equal approximately 51 sq. ft. of floor space and an inside volume of approximately 650 cu. ft. Standard vaults should not exceed 1,000 cu. ft. in inside volume.

The 27 vaults are separated from each other by 6-inch cinder block walls that are not plastered on either side. The vaults are separated from the adjoining corridor by an 8-inch cinder block wall. The doorway to each vault is protected by a single heavy steel vault type door that swings into the corridor and is not arranged to close automatically in case of fire. When these doors are closed they appear to be fairly tight with respect to preventing the passage of flame around the edges. There is no room for an automatic closing fire door on the vault interior side of the wall.

The vaults are not provided with decomposition vents. Each vault, however, is provided with an individual horizontal explosion vent of adequate size fitted on the standard requirement of one square foot for each 50 cu. ft. of vault volume space. These vents are located in the outer wall at the end of the vaults, and they are constructed of two panels of transite board with rock wool insulation between. These vent panels are arranged to blow outward and release the internal pressure before it rises to approximately 0.25 lb. per square inch. Since these vaults are becoming a real hazard to the surroundings vertical

Director, Protection Division - P&P

fire and explosion vents to deflect the discharge in a vertical direction instead of a horizontal direction are highly recommended.

- c. The Film Work Room - The film work room is 16 ft. X 16 ft. and has an adjoining toilet and a closet to house an electric heated hot water tank. These areas are cut off from the adjoining vault and the corridor by an 8-inch cinder block wall, with a non-automatic closing metal and wire-glass door at the entrance to the film work room from the corridor. This room is also provided with a panic hardware equipped door that opens directly to the outside. The doors to the toilet and hot water tank closet are metal doors.
- d. The Office - The office room is also 16 ft. X 16 ft. and the construction is of the same type as that of the film work room.
- e. The Heater Room - The heater room is approximately 5 ft. X 8 ft. The exterior walls are 8-inch cinder block and the roof and floor are concrete. A solid 8-inch cinder block wall separates this room from the adjoining office room. The smokestack is of masonry construction and extends to about 15 ft. above the roof.
- f. Air Conditioning Room - This room is approximately 5 ft. X 10 ft. The construction is the same as that of the heater room.
- g. The Transformer House - This structure has a dimension of about 12 ft. X 12 ft. The walls are brick and the roof and floor are concrete. It is located about 25 ft. southwest of Building "B".

#### 4. Occupancy Features

- a. General - Buildings "A" and "B" are occupied by the National Archives and Records Service and are used for the storage of nitrate film belonging to various Government agencies. Building "C" is occupied by the Library of Congress and is used for the storage of nitrate film belonging to that agency. Since there is no large scale program for copying this film on safety stock, these buildings are expected to be used for the storage of nitrate film for a good many years in the future. It is possible that some of the nitrate film stored here may not be completely stabilized which would tend to increase the chances of spontaneous heating or decomposition under ordinary conditions.

Since these three film storage buildings are identical in all occupancy features, further description of occupancy will be confined principally to one building. Further, since the individual vaults are also identical the occupancy features of only one vault will be described in detail.

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As stated before, each building contains 27 individual vaults, a film work room, an office, a heater room and an air conditioning room. A film vault normally contains a total of 6,000 pounds of nitrate film stored in 1,200 metal containers on non-insulated skeleton type metal racks. The vaults are air conditioned by a centralized chilled water circulating system with an individual blower unit in each vault. This system is controlled by a thermostat and the recorded temperature averages about 62 degrees F. The central system machinery is located in the air conditioning room of each building. The system in Building "B" was found out of service (out 8/17/57) and was not expected to be back in service before September 3. Since summer temperature inside the vaults should be maintained at least below 70 degrees F. at all times in order to help prevent the beginning of film decomposition and spontaneous heating, it is most important that the air conditioning system be kept in service without interruption during hot weather. Although mild weather existed on the day of this inspection, the temperature recorded inside the vaults was slightly above 70 degrees F., with the vault doors kept open to maintain air circulation. In general, this created a fire and explosion condition that should never be tolerated for even a short period of time in hot weather. Heat in the winter is maintained in the vault area by four hot water circulating pipes installed just below the center of the corridor ceiling. The temperature maintained during the winter months apparently does not exceed 55 degrees F.

The film work room is used for inspecting, clipping and rewrinding of nitrate film. Not over ten containers (50 lb.) of film are ever handled in this room at any one time. The work is done mostly on metal tables and/or benches and the film rewrinding is done on open type racks. Scrap film was found under water in standard covered cans in Buildings "A" and "B". In Building "C" the scrap film was in a standard covered can but not under water. The scrap film is hauled away regularly in a covered barrel by a local contractor, who destroys this scrap by burning. Housekeeping in the work room was only fair. Combustible storage was found against the electrically heated hot water tanks and the waste paper towel containers in the toilets were found badly overflowing, indicating that these open type containers had not been emptied for several days. Heat for this room and the office directly across the corridor is by hot water radiators. The electric wiring and the connecting electrical equipment in these rooms, do not meet the standards of the National Electrical Code for hazardous locations. The office room is used for working desks, files and other ordinary metal office equipment.

The heater room contains the automatically controlled oil fired circulating hot water heater. The heater was manufactured by the American Radiator Company and the oil burner is a gun type and was made

Director, Protection Division - PMP

by the Petro Company. The oil supply is No. 2 and the oil supply tank is buried outside. The control air conditioning machinery is located in the air conditioning room, as shown on the attached sketch. Freon gas is used as the refrigerant in the air conditioning system.

The transformer house contains the electrical transformers, the main switches, etc., used in the operation of the three buildings. The incoming power lines and the distribution lines are buried underground. The incoming voltage is 13,000 volts.

- b. Aerial Storage Vault - As stated before, the individual storage vaults are identical in all respects, including construction, size and occupancy. The individual cooling unit is suspended from the vault ceiling and is connected to the central circulating air conditioning system. The chilled water circulates through a series of coils in the unit and an electric motor driven aluminum fan circulates the air across these coils. The thermostat is located in the air conditioning room and its operation depends upon the temperature of the returning water at that point. Each unit is known as a Silco Heat Transfer Unit, manufactured by the Silco Products, Inc. of Minneapolis, Minn. The serial number of the unit examined was 2602 and the size number was 30 - 3-1.

All electric wiring and its connecting equipment in the vaults and in the connecting corridor meet the requirements of the National Electrical Code.

Film storage racks are located on each side of the vault aisles. The racks are uninsulated metal skeleton type racks. Each rack is 11½ in. deep and extends from the floor to the ceiling and from end to end of the vault. The vertical distance between each rack shelf is 12½ in. Each of the two racks in each vault will accommodate 600 film containers or 1,200 containers per vault. A container holds 1,000 ft. roll of 35-mm nitrate film which weighs 5 lb. The 1,200 rolls at 5 lb. a roll amounts to 6,000 lb. (or 3 tons) of nitrate film in each vault, or 162,000 lb. (61 tons) in each of the three storage buildings. The actual heat of nitrate film combustion measured in B.T.U. per pound is 6,000 to 8,000 as compared with 8,000 to 9,000 for wood but the rate of combustion of nitrate film is about 15 times faster than that of wood in the same form. The speed of combustion or propagation of any combustible will also determine the pressure force rate that may be generated within any unvented enclosed area. The pressure force of burning nitrate film has been known to exceed 13 psi.

The above figures are given in this report to amplify the quantity

2,000  
excl. 1,000

Director, Protection Division - FFP

and capacity of the fire and explosion hazard that is present in any one of the 81 vaults and in any one of the three storage buildings at this Bullard location.

It was found that as high as seven containers were stacked on top of each other in one vertical space between two shelves of the storage racks. This form of stacking creates an almost solid stack of containers from the vault floor to the vault ceiling and from end to the other end of the storage racks. The containers are made of metal and are round. The diameter of the containers varies from 10½ in. to 1½ in. Parts of containers exceeding 10½ in. were found outside some storage racks. From a fire and explosion point of view this form of nitrate film storage greatly increases the chances of spread of combustion especially in the open skeleton type racks now in use at this location. In addition, many film container covers were found only partially in the closed position. Piles of empty paper cartons and oily rags were also found in some of the vaults. Such poor house-keeping conditions only add to the hazards that are constantly present in this type of storage and should not be tolerated. In general, the film containers appear to be in good condition. Some containers in buildings "A" and "B" were found to be pretty badly corroded.

##### 5. Fire Characteristics and Fire Protection Features

- a. Some Characteristics of Nitrate Film - Cellulose nitrate is made by the action of nitric and sulphuric acids on cellulose materials, such as cotton. While the different classes of cellulose nitrate are similar in general characteristics, they are dissimilar in others, the difference being in the percentage of nitrogen content of the material. Nitrate film contains chemically combined oxygen sufficient in amount so that this material can partially burn or decompose without presence of air. It is easily ignited and burns furiously on its own chemically combined oxygen with the generation of poisonous and explosive gases. It may start decomposition with subsequent fire at approximately 220 degrees F. The danger of ignition by self-heating is slight for new film but increases appreciably as the film becomes older. Some of the film stored in these vaults is quite old at the present time.

Various experiments show that the decomposition of 1,000 lb. of cellulose nitrate at low temperature forms approximately 3,000 cu. ft. of gas at ordinary atmospheric pressure and temperature. At high temperature and pressure it will form about 4,500 cu. ft. of gas. The volume of gas and the speed of formation increase with the temperature, and when large quantities of nitrate film decompose in a small room or vault not provided with adequate vents, the gas

Director, Protection Division - RFP

pressure may be sufficient to force out masonry walls. This pressure is known to have exceeded 13 psi. It is also known that when large quantities of nitrate film are ignited in small rooms or vaults, gas is generated so rapidly that the major part of the combustion takes place outside. The gases do not find sufficient air supply for combustion until they pass outside, resulting in greater heat flow for long distances outside the fire area. This flame distance has been known to exceed 125 feet.

Some of the gases of decomposition are highly poisonous. Carbon monoxide will kill without warning. The toxic effect of oxides of nitrogen is often delayed and persons exposed may show no ill effect, but difficulties may follow in a few hours or days after exposure by the formation of nitric acid in the lungs. And exposure to oxide of nitrogen gas at some distance out in the open air from the source of burning film has been known to cause death.

The common hazards of nitrate film noted above are given in this report again to remind the reader of the dangerous characteristics of burning nitrate film before discussing the present fire prevention and fire protection features found available during this inspection.

- b. Water Supply - Water supply for all purposes is furnished by the public water system, which is operated by the Suburban Sanitary Commission. The system is direct pumping with overflow to two 400,000 gal. gravity tanks, one located near this facility. A flow test made at the fire hydrant located across the street from the north corner of F.O.B. No. 4 produced a static pressure of 62 psi and a flow of approximately 1,165 gpm at a residual pressure of 35 psi. A coefficient of discharge of .90 was used in computing the flow figures. This flow would be greatly increased at this vital location if the 8-inch main north of F.O.B. No. 4 were extended and connected to the 8-inch main from which the above flow was taken. This would be particularly true when the new 8-inch connection to the 12 in. public main north of F.O.B. No. 4 is open and put in service. Other available fire hydrants are shown on the attached sketch, including those located at the new U. S. Naval Photographic Interpretation Center Building. However, no gate is provided near the west corner of the fence line for convenient use of these hydrants in case of fire in the film vault buildings.
- c. Automatic Sprinkler Systems - There are no automatic sprinkler systems in the film vault buildings. This very vital fire protection should have been provided when these vaults were built. Automatic sprinkler protection is of utmost importance. Water from sprinklers serves not only to cool the film, extinguishing

## Director, Protection Division - PDP

the fire or at least retarding the decomposition, but also the water spray tends to absorb the dangerous nitric gases. Where nitrate film is stored in quantity, as is the case at this location, a special automatic sprinkler system designed to deliver more water than the ordinary installation is required.

- d. First Aid Fire Fighting Equipment - Six 2½ gal. water filled gas pressure type fire extinguishers are installed in the corridor of each building. This type of extinguisher is very appropriate for use on burning nitrate film, and the number appears to be adequate.
- e. Facility Fire Brigade - None. There is only one employee on duty in each building during normal working hours. They have been trained in the use of fire extinguishers but it is doubtful if they would attempt to use them in case of fire since they are instructed to vacate the buildings immediately in case of fire in the vaults.
- f. Public Fire Departments - All the public fire departments in this suburban area are operated and maintained on a volunteer basis. The District Heights Department and the Silver Hill Department are located about two miles from these film storage buildings and would be the first companies to arrive on the first alarm. Since an excellent mutual agreement is maintained between all fire departments in this area of Maryland, at least four other companies would respond as soon as possible, if summoned. The District of Columbia Fire Department, about 1½ miles to the nearest station, would also respond if called. All fire departments are equipped with 2-way radio systems.
- g. Fire Alarm System - There is no fire alarm system for these film vault buildings, except for a telephone in the office of each building. It is doubtful if the telephones would ever serve to report a fire since the employees have been instructed to leave these buildings at once in case of fire, and it is obvious that no one would enter these premises for any reason in event of fire.
- h. Guard Service - Guard service is furnished by the Suitland Group Guard Corp. No guard is stationed at these film vault buildings. During nonworking hours, a guard makes an unrecorded visit to the yard of these buildings on a four to six hour schedule. In view of the grave hazards involved in these buildings these infrequent guard visits are seriously inadequate.
- i. Fire Exposure - As noted on the attached sketch, there is no serious fire exposure to these film vault buildings. It is important, however, to keep the grass and weeds cut clear at all times in the vicinity of the buildings.

Director, Protection Division - NRP

## 6. Conclusions

The conclusions and recommendations listed below are primarily based on the fact that the largest portion of the nitrate film now stored at this location will require a suitable storage space at some location for many years in the future.

- a. Since the areas in the vicinity of these film vault buildings are being built up rather rapidly by the erection of Government-owned and private structures, it is felt that the recent reports concerning the growing fire and explosion exposure hazards of the large quantities of nitrate film stored here are completely justified.
- b. In view of this, it is strongly felt that some sort of corrective action should be given due consideration as soon as possible.
- c. The most effective fire prevention measure is to dispose of the nitrate film by copying it on safety stock.
- d. Since it has been stated by proper authority that it will be many years before all of the present nitrate film will be copied on safety stock, or disposed of by other safe means, one of the following plans of action should be followed:
  - (1) Move all of this nitrate film to more suitable storage facilities at an isolated location that would serve its purpose safely for the life of this film.
  - (2) Carry out all of the recommendations listed below in order to insure reasonable protection at the present location.

## 7. Recommendations

### a. Construction

- (1) Replace the present horizontal explosion vent in each vault by an overhead vertical explosion vent, using the present horizontal explosion vent as the mouth of the new vertical vent. The vertical vents should be constructed of masonry equivalent to that of smokestacks for solid or liquid fuel and should extend to at least 10 ft. above the roof. The lower part of the vent stacks should be securely anchored to prevent a horizontal movement from internal pressure. The mouth and throat part of the vent should be beveled to decrease friction resistance of

Do not  
concur.

1000/8/11

Freeman estimate  
\$500 each 75,000  
Total \$37,500

Director, Protection Division - #17

that part of the vault area. No part of the interior vertical film area should be less than 15 sq. ft. The top of each vault stack should be equipped with a substantial positive free lifting metal cover held down by frictional latches that will release and allow the cover to raise freely and completely before the internal pressure reaches approximately 0.25 psi. The cover should be provided with substantial short-chain type hinges to allow the cover to fly completely off the top of a stack without being dislodged into the air. A proper bumper arrangement should be provided at a point on the exterior of the stack where the cover would strike with considerable force. The stacks should be protected from lightning strokes by thoroughly grounded lightning rods, or by thoroughly grounded metal warts located at strategic points of the facility yard. The ohm resistance of the grounding arrangement should not exceed 5 ohms.

(2) Provide a gate in the fence line at a point near the northwest corner of the yard so that fire hose connected to fire hydrants at the new U. S. Naval Photographic Interpretation Center Building could be used freely in case of fire in a vault building. 56

#### 8. Compressor

(1) The present skeleton metal film racks should be changed to concrete ones with studded open-front compartmental type racks. The rack shelves and the vertical baffles to be of noncombustible insulating material at least 3/8 in. thick. The vertical baffle to divide the racks into sections not over 18 inches wide. The insulated shelves and the vertical baffles to be tightly fitted to other and tightly fitted to the walls. The shelves and vertical baffles to be at least two inches wider than the diameter of the largest container being stored.

(2) Since the pressures developed and the ensuing hazards to life and property are dependant on the total amount of nitrate film that is stored in a vault, the present film load should be decreased as fast as possible in each vault by finally storing only two containers high on rack shelves instead of the present 6 to 7 containers high. This plan of storing can be accomplished as fast as money conditions are made available by copying the nitrate film on safety stock, or other means of safe disposition. There is now considerable space available that apparently could be used for this purpose.

(3) Provide a spare compressor and other vital parts for immediate use when any of the air conditioning systems breaks down.

Director, Protection Division - PBP

- (4) Keep covers on all film containers fitted tightly down at all times.
- (5) Maintain EXCELLENT housekeeping at all times throughout the vaults and other areas of the vault buildings. Combustibles must not be stored around the electrically heated hot water tanks.
- for record  
A copy* (6) The electrical appliances, electrical receptacles, electrical switches, wiring, etc., in the film work room should be changed to comply with the Standards of the National Electrical Code for hazardous locations.
- (7) Keep scrap film under water in the containers now provided for this purpose.

c. Fire Prevention and Fire Protection

- 10/18/54* (1) Install a standard wet pipe automatic sprinkler system with a supervised water-flow alarm throughout all three film vault buildings, including the heater room and the air conditioning room. The number and spacing of the automatic sprinklers in each film storage vault to be calculated on the basis of not less than one sprinkler head for each 65 cu. ft. of the total volume of the vault. Since each vault contains approximately 650 cu. ft. of volume, it is recommended that not less than 10 sprinkler heads be installed in each of the 81 vaults. The sprinkler heads should be arranged to provide adequate coverage over the tops and front of the rack shelving. Steel baffles should be installed evenly between each sprinkler head. Baffles should be of substantial construction rigidly fastened in place and shall extend from the ceiling to a level at least 4 inches below the deflectors of the sprinkler heads. If this baffle should prevent adequate coverage over the tops of the racks, arrangement should be made to lower the racks of film stock sufficiently to get proper coverage. The feeder pipes and the water supply for the sprinkler systems should be of sufficient capacity to guarantee a simultaneous water-flow of 20 gpm per sprinkler head in any one vault, plus 25 per cent of the number of sprinklers in the adjoining fire areas. The number of automatic sprinklers required for areas outside the film storage vaults should be calculated on the basis of not less than one sprinkler head for each 60 sq. ft. of the total areas involved. The sprinkler systems and the connecting alarm system should be installed only by well qualified men familiar with the particular type of sprinkler systems to be employed in these buildings.

Director, Protection Division - PWF

- 510 | 1  
| 10/10/57
- (2) In order to increase the water supply at these film vault buildings, the 6-in. water main north of F.O.B. No. 4 should be connected to the 8-in. water main northwest of F.O.B. No. 4. This connection would complete the loop around the other Government-owned buildings forming the Suitland Group, thus improving the water supply in general.
- § 50/per
- (3) Provide each vault with a suitable floor drain, or wall scupper, to the outside of buildings. The drain should be of sufficient size to properly drain the floor when all 10 automatic sprinklers are operating at one time. In addition, adequate provisions should be made at the vault entrance door to prevent water from flowing into the adjoining corridor.
- (4) Provide a reliable manually operated outside type fire alarm box just outside of the main entrance gate to these vault buildings. This alarm should be connected to the present fire alarm system of the Suitland Group of buildings.
- (5) A special emergency plan should be organized for immediate action in event a fire alarm is sounded to notify of a fire in these vault buildings at any time, day or night. In addition to all SIA operating personnel, the plan of the organization should include local fire departments and local police departments. The plan should include immediate evacuation of F.O.B. No. 4, the U. S. Naval Photographic Interpretation Center Building, and all private buildings located on Suitland Road that may be located in the danger zone of a fire in these film vaults. All traffic on Suitland Road should be stopped or properly detoured during a fire emergency. After the emergency organization is formed, occasional drills should be held to make sure that all members or alternates clearly understand what they are to do in case an alarm is sounded. Members of the organization should be provided with proper gas and fire protective equipment and necessary rescue equipment, all suitable to cope with the fire and toxic gases of nitrate film.
- (6) The SIA guards should make hourly recorded rounds outside these vault buildings during the night and on Sundays and holidays.

Enclosures

CC: Official File - PWF  
 WCGrover - W (2)  
 Regional Commissioner - BR  
 WCFreeman - PWF

WCFreeman/lci 10/10/57 Ext. 4831

Fire doc. 775  
 \$250 per

\$5.00 per photo

EXHIBIT D

Received

JUN 29 1973

Revised  
(5/30/73)Assistant Director  
Management

Survey Report, Airconditioning - Safety  
 Film Vaults A, B, and C  
 Suitland Reservation, Suitland, Maryland  
 GS-00B-01321  
 May 7, 1973

On April 26, 1973, an airconditioning survey was made for Vault Buildings A, B, and C at the Suitland Field Office, Suitland, Maryland. The survey was performed by the Design Branch of the Office of Operating Programs, of the General Services Administration.

## BACKGROUND

The three vault buildings are now occupied by two agencies: buildings A and C are under the National Archives, while building B is operated by the Library of Congress. The vaults within these buildings are now being used to store nitrate base film. This film is extremely flammable and must be kept under special conditions in order to minimize decomposition and resulting combustible gases. The film stored in these vaults is considered of historic value and is in the process of conversion to "safety film", but until that conversion, must be preserved with a minimum of decomposition.

The three buildings are identical one story cinder block construction, each measuring 40 by 100 feet, each housing a processing room, an office, and 17 individual film storage vaults. The buildings were constructed just after World War II. The vaults themselves are walk-in type with dimensions 7 feet wide, 15 feet long and 8 feet high.

This survey was prompted by a September 22, 1971, memorandum prepared by the Contract and Procurement Office of the Library of Congress. The memorandum prepared by Mr. Stephen Bush of said office, described the following deficiencies with the mechanical systems of Vault Building B. (These conditions were found to be accurate for Vault Buildings A and C as well, except item No. 4 since no rewind tables presently exist.)

1. Performance of vault airconditioning system inadequate to meet load requirements.
2. Ventilation of processing room work area not operable from November to April as exhaust fan is on same circuit as airconditioner which is now operated seasonally.
3. Seasonal operation of airconditioning system does not allow for unseasonably warm weather and fails to provide for "positive ventilation" of flammable film decomposition gases during shut-down.
4. Safety control in processing room could result in a fire if static electricity resulting from high speed rewind table in ignition of nitrate film.

DESIGN CRITERIA

The design parameters set forth here, are those established in the referenced memorandum, and revised through conversations with Mr. Stephen Bush, GSA Fire Protection Officials, and Mr. William Murphy, Film Archivist of the National Archives.

Vault room temperature: 42 - 50°F DB  
 Vault room humidity: 40 - 60% RH  
 Processing room humidity: 50 - 60% RH  
 Ventilation capture velocity: 100 fpm  
 for processing room work area  
 Provision for decomposition venting should be made

FINDINGS

The present vault airconditioning system comprises 27 individual fan-evaporator units with a common compressor and condenser. This system is estimated to be 15 years old.

The fan-evaporators, DX units, were made by Silco Products Incorporated. Indications are that this company no longer exists, or has been incorporated into another organization. Considering this condition, it is difficult to establish the operating limits of the coils. However, they are probably not suited for the design parameters as stated above. In order to maintain the 42-50°F DB vault temperature, the evaporator coils would be below 32°F DB, ie. freezing. Hence any condensation resulting from the cooling process would result in a "frosting" of the coil, preventing it establishing design room temperature. Presently, no defrost equipment exists for these coils.

The existing compressor, which is common to all 27 DX units, is a Chrysler Air Temp Radial. The life expectancy on these compressors is judged to be 15 to 20 years. Last season, vault building A had its compressor completely replaced. Buildings B and C are still functioning on the original compressors. The existing compressors are designed to provide 15 tons of cooling. The calculated heat load required for each existing vault building is 16 tons based on design criteria.

With these existing components, this system can provide no humidity control: design criteria calls controlling the relative humidity between 40 - 60%.

Although year round operation of the airconditioning system can be achieved through a system modification for low ambient operation, this is recommended only if replacement of the entire system is not planned or delayed into the fall of this year. This can be done for a relatively small cost and could be handled through the GSA Buildings Manager's office.

Vault construction is of major concern in meeting temperature and humidity design criteria and reducing heat load. Present vault construction makes it practically impossible to control humidity. With no vapor barrier on the exterior of the building, the block construction will allow moisture to enter the vaults. Lack of thermal insulation on masonry walls provides needless heat gain. Lack of insulation of vault doors and corridor walls produces additional heat load, and causes condensation to form in the hall to the extent that the floor must be mopped.

The existing explosion vents in each vault, are properly sized, but represent a principle source of heat gain. In fact, the infiltration around the blow-out section makes humidity control impractical.

By sealing these explosion vents, however, almost all air exchange would stop which would result in no decomposition gas removal. A cumulation of these gases represents an explosion hazard. Also, GSA Accident and Fire Protection Officials consider NFPA standards minimal in allowing the absence of decomposition venting if explosion vents exist.

Processing room ventilation is presently being handled by a 12 inch wall mounted exhaust fan, with an estimated capacity of 800 cfm. This fan is connected to the electric circuit which also operates the existing air-conditioning system and as such is subject to seasonal operation. This is unacceptable considering the toxic vapors and volatile nature of nitrate film. The use of laboratory type fume hoods, as recommended in the September 22, 1971, memorandum, is considered the most proper way of removing released gases. Because of the nature of nitrate film they would have to be rated "explosion proof," as would any electrically operated device in the room. With a capture velocity of 100 feet per minute at the hood intake, there would be nearly 800 cfm of air leaving the room for every hood in the room. For the three work stations in the processing room, this would require a make-up of 2400 cfm. Although this represents a considerable heat gain, a package airconditioner could handle this if conditioned make up air is required. However, the possibility of introducing unconditioned outside air directly into the hoods should also be considered.

Humidity control in the processing room, with an air exchange of 2400 cfm would be extremely difficult. NFPA recommends that rewind tables be placed in private rooms.

The office area or an unused vault would be suitable for relocating the rewind table. Although Vault Buildings A and C do not have motorized rewind tables, they may be installed at a later date.

Other means for reducing machine static electricity exist besides humidity control.

RECOMMENDATIONS

1. Replace existing vault airconditioning system with new individual vault system capable of meeting design parameters and winterized to operate year round. The existing system is too old and inadequate to meet design standards.
- 2. Install insulation on exterior and corridor walls to minimize heat gain.
- ? 3. Finish exterior of building with sealer to repel outside moisture.
- ? 4. Install insulation on vault doors, and provide weather stripping to minimize infiltration, condensation, and heat gain. Either this or replace them with standard refrigerator doors, at a much greater cost.
- ? 5. Replace existing insulation in explosion vents with plastic foam, thus providing an air tight seal, but not affecting vent's usefulness. This will minimize infiltration and reduce the vault's heat gain.
- ? 6. Provide decomposition vents with conditioned exchange air. This must be included in any vault upgrading project to minimize explosion hazard.
- ? 7. Install fume hoods over each work station in the processing room. This will assure local fume removal. Hoods must be "explosion proof."
- ? 8. Install small package airconditioning unit in building work area to provide necessary ventilation make-up if required, comfort cooling, and static control. It is recommended that the rewind table be removed from the processing room and placed in the office area, or an unused vault. Such locations are the only building areas where humidity control could be established if processing room ventilation is installed. If relocation of the rewind table is impractical, some other means for reducing machine static must be chosen in place of humidity control.

ESTIMATED COST

\$ 89,000 per vault building.

1. WINTERIZE # 2,000
2. STAINLESS COMPRESSOR # 2,000
3. INSULATION

EXHIBIT E

FILM VAULTS, A, B, C, SUITLAND MARYLAND  
ACCIDENT AND FIRE PREVENTION SURVEY REPORT  
JANUARY 17, 1977

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UNITED STATES OF AMERICA  
GENERAL SERVICES ADMINISTRATION



DATE: January 17, 1977

REPLY TO  
ATTN OF: Chief, Accident and Fire Prevention Branch (3POA)

SUBJECT: Accident and Fire Prevention Survey Report of  
Film Vault A, B, and C  
Suitland, Maryland

- Director, Buildings Management/Operation Division
- Director, Repair and Alteration Division
- Regional Commissioner, PBS

The enclosed subject report is approved, except as indicated hereon or by enclosed correspondence.

*James A. Harkins*  
Actg. Chief, Accident and  
Fire Prevention Branch

Enclosure

EXCEPTIONS AND CONCURRENCES

DIRECTOR, BUILDINGS MANAGEMENT/ OPERATION DIVISION	SIGNATURE <i>[Signature]</i>	DATE 1/27/77
REGIONAL COMMISSIONER, PUBLIC BUILDINGS SERVICE	SIGNATURE <i>[Signature]</i>	DATE 3/14/77
TITLE Director, Repair and Alteration Division	SIGNATURE <i>[Signature]</i>	DATE 3/3/77
DISTRIBUTION OF REPORT	1. Full report submitted to PBA, Central Office. 2. Major Accident and Fire Prevention Needs (GSA Form 2D6D-C) submitted to Director, Repair and Alteration Division (3PT)/Chief, Repair and Alteration Branch. 3. After concurrences have been obtained, the original will be returned to the Chief, Accident and Fire Prevention Branch, Public Buildings Service.	

(1)

GENERAL SERVICES ADMINISTRATION		PUBLIC BUILDINGS SERVICE	
ACCIDENT AND FIRE PREVENTION SURVEY REPORT - SYNOPSIS			
SURVEY OF		REG. NO	REPORT DATE
Film Vault A, B and C, Suitland, Maryland		3	1-17-77
SURVEY CONDUCTED BY (Names of employees)		SURVEY DATES (Mo., day, yr.)	
Andrew F. Przekop	Rosemary Kooiman	FROM	TO
Morton J. Dash	John L. Phillips	1-4-77	1-4-77
SYNOPSIS			
<p>The attached special survey report is forwarded in response to a request made by the Director, Accident and Fire Prevention Division (PBA) letter dated December 27, 1976 (letter attached) for a survey of needed fire protection improvements in Film Vaults A, B, and C.</p> <p>Results of the survey cite recommendations leading to realization for compliance with GSA Handbook PBS P 5920.9, Building Firesafety Criteria.</p> <p>The recommended improvements on pages 4-7 Major Needs are presented for programing by Repair and Alteration Division. These recommendations present a total protection system concept, based on the hazardous nature of the facilities operations. Total estimate cost for upgrading the necessary fire protection requirements is \$88,000.</p>			

## ACCIDENT AND FIRE PREVENTION SURVEY REPORT - FOR LOCAL ACTION

PROPERTY OF Film Vaults, A, B, and C Suitland, Maryland	REG. NO. 3	REPORT DATE 1-17-77
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Items listed below require correction by the Buildings Manager or other official in charge.

ITEM NO.	FINDINGS AND RECOMMENDED ACTION	COST ESTIMATE AND RESPONSIBLE AGENCY/SERVICE
77-1	<p><u>Automatic Sprinkler Waterflow Alarm - Vault "A"</u></p> <p>Waterflow alarm signal for the automatic sprinkler system is not connected to FB 3 and Regional Office Building, Records and Communication Center to provide early notification and fire department response.</p> <p><u>Recommendation</u></p> <p>Provide an automatic electrical waterflow alarm signal upon activation of the sprinkler system transmitted to FB 3 and Regional Office Building, Records and Communication Center.</p>	<p>\$650.00 Management Action (Bldgs. Mgr.)</p>
7-2	<p><u>Automatic Sprinkler Valve Supervision - Vault "A"</u></p> <p>The sprinkler system water supply valve is not supervised to provide notification if the valve is inadvertently or maliciously closed.</p> <p><u>Recommendation</u></p> <p>Provide automatic electrical alarm supervision for the sprinkler supply valve. The valve closing signal is to be transmitted to FB 3 and Regional Office Building, Records and Communication Center.</p>	<p>\$650.00 Management Action (Bldgs. Mgr.)</p>

## ACCIDENT AND FIRE PREVENTION SURVEY REPORT - MAJOR NEEDS

BUILDING NAME AND/OR ADDRESS (No., street, city and State)

Film Vault "B", Suitland, Maryland (MD0038AG)

GSA STATUS OF BUILDING

 HAS R AND I RESPONSIBILITY LEASED OTHER (Specify)

REG. NO.

3

REPORT DATE

1-17-77

SURVEY CONDUCTED BY (Names of employees)

Andrew F. Przekop

Rosemary Kooiman

Morton J. Dash

John L. Phillips

Major accident and fire protection needs for this building are listed below in descending order of importance.

ITEM NO.	FINDINGS AND RECOMMENDED ACTION	COST ESTIMATE AND RESPONSIBLE AGENCY/SERVICE
77-1	<p><u>Automatic Sprinkler Protection - Film Vault "B"</u></p> <p>The building consists of 27 vaults in which large quantities of cellulose nitrate motion picture film is stored plus a corridor and two work rooms.</p> <p>Cellulose nitrate contains chemically combined oxygen that can partially burn or decompose without the presence of air. The gases formed by such decomposition are both toxic and flammable and may be produced so rapidly as to create dangerous pressures in the building which potentially could become highly hazardous to lifesafety.</p> <p>The building is protected by a substandard automatic sprinkler system.</p> <p>The intent of the following recommendation is to upgrade the existing system and to provide adequate fire protection standards.</p> <p><u>Recommendation</u></p> <p>a. Provide approximately 2,786 square feet of automatic deluge water spray sprinkler system with combination rate of rise and fixed temperature detectors, and conforming to NFPA requirements for "Extra-Hazard Occupancies", identical to the existing sprinkler installation in Vault A.</p> <p>b. Schedule the following new item in Category 490 of RACOS for FY 78:</p> <p>"Automatic Sprinkler - Film Vault B. . . . . \$44,000 Because of the high fuel load of cellulose nitrate film and the rapid burning characteristics of the material, such fires are extremely intense and create a serious lifesafety hazard. Install approximately</p>	<p>\$44,000</p> <p>Mgmt. Action R and A Div.</p>

## ACCIDENT AND FIRE PREVENTION SURVEY REPORT - MAJOR NEEDS

BUILDING NAME AND/OR ADDRESS (No., street, city and State)

Film Vault "B" Suitland, Maryland (MD0038AG)

GSA STATUS OF BUILDING <input checked="" type="checkbox"/> HAS R AND I RESPONSIBILITY	<input type="checkbox"/> LEASED	<input type="checkbox"/> FIRM (Spec./s)	REG. NO. 3	REPORT DATE 1-17-77
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SURVEY CONDUCTED BY (Names of employees)

Andrew F. Przekop

Rosemary Kooiman

Morton J. Dash

John L. Phillips

Major accident and fire protection needs for this building are listed below in descending order of importance.

ITEM NO.	FINDINGS AND RECOMMENDED ACTION	COST ESTIMATE AND RESPONSIBLE AGENCY/SERVICE
77-1 (Con't)	<p>2,786 square feet of automatic deluge water spray sprinkler system identical to the one installed in Film Vault A in accordance with National Fire Protection Association (NFPA) Standard 40, the standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film and NFPA Standard 13, Installation of Sprinkler Systems with requirements for "Extra-Hazard Occupancies," to protect the entire building. The automatic sprinkler system is to be designed to provide rapid actuation and prompt application of water in all 27 film vaults, corridor, work rooms, and offices as to limit the spread of fire within the facility.</p> <p>Provide valve tamper signal devices and waterflow alarms to be connected to building FB 3 and the Regional Office Building - Records and Communication Center. Consult the Accident and Fire Prevention Branch and their report of January 17, 1977 for details and project review."</p> <p>c. Change BDR Item 59, Fire Sprinklers Status, to read: "Inadequate."</p>	<p>Management Action. (R and A Div.)</p>

## ACCIDENT AND FIRE PREVENTION SURVEY REPORT - MAJOR NEEDS

BUILDING NAME AND/OR ADDRESS (No., street, city and State)

Film Vault "C" (MD0039AG) - Suitland, Maryland

GSA STATUS OF BUILDING  
KSA HAS "H" AND "I"  
RESPONSIBILITY LEASED OTHER  
(Specify)REG. NO.  
3REPORT DATE  
1-17-77

SURVEY CONDUCTED BY (Names of employees)

Andrew F. Przekop,  
Morton J. DashRosemary Kooiman  
John L. Phillips

Major accident and fire protection needs for this building are listed below in descending order of importance.

ITEM NO.	FINDINGS AND RECOMMENDED ACTION	COST ESTIMATE AND RESPONSIBLE AGENCY/SERVICE
77-1	<p><u>Automatic Sprinkler Protection - Film Vault "C"</u></p> <p>The building consists of 27 vaults in which large quantities of Cellulose Nitrate motion picture film is stored plus a corridor and two work rooms.</p> <p>Cellulose nitrate contains chemically combined oxygen that can partially burn or decompose without the presence of air. The gases formed by such decomposition are both toxic and flammable and may be produced so rapidly as to create dangerous pressures in the building which potentially could become highly hazardous to lifesafety.</p> <p>GSA Handbook, PBS P 5920.9, Building Firesafety Criteria identifies these areas as requiring automatic sprinkler protection in order to reduce the fire loss risk to an acceptable level.</p> <p><u>Recommendation</u></p> <p>a. Provide approximately 2,786 square feet of automatic deluge water spray sprinkler system with combination rate of rise and fixed temperature detectors, and conforming to NFPA requirements for "Extra-Hazard Occupancies" identical to the existing sprinkler installation in Vault A.</p> <p>b. Schedule the following new item in Category 490 of RACOS for FY 78:</p> <p>"Automatic Sprinklers - Film Vault "C". . . . \$44,000</p> <p>Because of the high fuel load of cellulose nitrate film and the rapid burning characteristics of the material, such fires are extremely intense and create a serious life-safety hazard. Install approximately 2,786 square feet of automatic deluge water spray sprinkler system identical to the one installed in Film Vault "A" in accordance with</p>	<p>\$44,000 (PBS)</p> <p>Management Action (R and A Div.)</p>

## ACCIDENT AND FIRE PREVENTION SURVEY REPORT - MAJOR NEEDS

BUILDING NAME AND/OR ADDRESS (No., street, city and State)

Film Vault "C" (MD 0039AG) - Suitland, Maryland

GSA STATUS OF BUILDING

 HAS R AND I  
RESPONSIBILITY LEASED OTHER  
(Specify)

REG. NO.

3

REPORT DATE

1-17-77

SURVEY CONDUCTED BY (Names of employees)

Andrew F. Przekop

Morton J. Dash

Rosemary Kooiman

John L. Phillips

Major accident and fire protection needs for this building are listed below in descending order of importance.

ITEM NO.	FINDINGS AND RECOMMENDED ACTION	COST ESTIMATE AND RESPONSIBLE AGENCY/SERVICE
77-1 (Con't)	<p>National Fire Protection Association (NFPA) Standard 40, the Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film and NFPA Standard 13, Installation of Sprinkler Systems with requirements for "Extra-Hazard Occupancies," to protect the entire building. The automatic sprinkler system is to be designed to provide rapid actuation and prompt application of water in all 27 film vaults, corridors, work rooms, and offices as to limit the spread of fire within the facility.</p> <p>Provide valve-tamper signal devices and waterflow alarms to be connected to building FB 3 and Regional Office Building, Records and Communication Center.</p> <p>Provide drainage scuppers in exterior walls, identical to those installed in Film Vault "A", conforming to National Fire Protection Association NFPA Standard 40.</p> <p>Consult the Accident and Fire Prevention Branch and their report of January 17, 1977 for details and project review."</p>	

## EXHIBIT F

301 10 11/

Chief, Accident and Fire Prevention Branch (3POA)

Automatic sprinkler protection, Cellulose Nitrate Motion  
Picture Film Storage Building A, Suitland, Maryland

Buildings Manager, Suitland Field Office (3PFSS)  
Thru: Manager, South Area (3PFS)

A recent inspection by Accident and Fire Prevention Branch of the high speed deluge water spray automatic sprinkler protection systems in the subject building revealed that all sprinkler heads in the 27 film vaults are closed heads. Open head deluge systems were to be installed to limit the spread of a rapid burning fire. In areas within the building other than film vaults, sprinkler heads are of the standard closed head as required. We recommend that necessary action be taken by group forces immediately to provide open sprinkler heads for the 27 vaults in order to achieve a high speed deluge automatic sprinkler system for each film vault.

This may be accomplished by removing the fusible link element from each existing sprinkler head.

If there are any questions, please contact Mr. Andrew F. Przekop, Accident and Fire Prevention Branch on 472-1618.

James A. Hawkins

JAMES A. HAWKINS  
Chief, Accident and Fire Prevention Branch

cc:  
Official file (3POA)  
Reading file (3POA)  
Facility file (3POA)  
3PFSS  
3PFS  
NNV  
3N  
3POA:APrzekop:ghr:10/17/77 x 21618

## EXHIBIT G

 NATIONAL ARCHIVES MOTION PICTURE VAULT BUILDINGS  
 SUITLAND, MARYLAND  
 Attendant's Daily Report on Temperature Readings

 VAULT NO.          *1" 4<sup>th</sup> Fraction*

DATE	TIME	TEMPERATURE	REMARKS
3/14/79	3:00	Called Taylor	far green # 1, 2, 20-21 (Tark) running 58-60
3/17/79	3:10	Called Taylor	(viola) # 19-27
3/23/79	3:30	Called Eng. Room	Taylor out, Phillips out, skip on scene - temp. on trailer 59° - Mr. Phillips was to contact Jan owner of trailer
3/30/79	12:50	Called Eng. Room	Temp. 57° V17-570- called Bill
3/30/79	4:00	61°	Donald inside trailer
4/2/79	3:10	Called Taylor	running engine Vault 17 running high
4/3/79	3:07	Called Taylor	inside Vault 17 - called Daley
4/4/79	3:20	no light	Vault 4 - <del>out</del>
4/5/79	3:10	Called Phillips/Bill	All temps. running high.
4/6/79	3:00	no light	
4/9/79	3:10 PM	no light	
4/23	3:00	V-17, 19 -	Called Daley on this 60° & 56°
4/24	9:45		called Daley again on V17
4/24	9:00		called Phillips on V17
4/30	4:10		called Skaggs V12(55°) V17(57°) called VE Karl, Mar, Hy
5/1	2:55		called Youngerman V17 best called Wm. Murphy also called Wm. Murphy also at 10:45 am Gast
5-9-79	3:02	Youngerman called	V-9 57° - V-10 56°
5-11-79	3:31	Called Eng. Room	high temp. V-9 57° V-11 57° 58° 57°
5-11-79	7:50 am	Called Eng. Room	V-9 9° 10° - 21/50°
5-11-79	2:45 pm	Called Eng. Room	on V-9 58° - 56°
5-16-79	3:00 pm	Called Taylor	(V17) 58° VW
5-17-79	10:00	Called Taylor	on V17 58° (VW)
5-18-79	9:00	Called Daley	on V17 58° (VW)
5-22-79	2:20	Called Youngerman	V17 60° (VW)

NATIONAL ARCHIVES MOTION PICTURE VAULT BUILDINGS  
 SUITLAND, MARYLAND  
 Attendant's Daily Report on Temperature Readings

VAULT NO. \_\_\_\_\_

DATE	TIME	TEMPERATURE	REMARKS
5/24/79	8:20	V-9, 10, 16, 17	Running 57°-54°-55°-56°
5/25/79	4:10	V-9, 10, 16, 17	Running 57°-58° Called Shago
5/30/79	2:50	V-9, 10, 17, 22	Running 57°-62° (#17 highest) Called L03
6/1/79	14:30	V-9-10	called Shago & Sally, Murphy, Running - 59°-58° to 60°
6/2/79	11:15	V-9-10	Running 58° + 59° Called Shago
6-6-79	3	V-9-10	at 59° + 58° respectively called Shago
6-7-79	1:45	V-9-10	at 59° + 58° called Youngerman
6/7	3:	V-9-10	at 60° + 59°
6/7	3:	V-16-17	at 57° + 56°
6/7	3:	V-14	at 57°
6/7	3:	V-14, 16, 17	at 57° 52° 58° called Shago





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Jones	CP	11/11/77	High ground Com
Leahy	FEI		Zone pumps in service
St. John	FEI		Seaward decommission
Quinn	RET		Converter, Russell
Bryan	FEI		Replacery Comp. Royal
Chang	FEI		Hydro. Pm Fe U.S.
Horn	Pm		
Jacobs	L		
Gardner	RET		
Marshall	RET		
Pushko J	RET	FOB4	45-100 - Broken Chile
Pushko R	RET		in service, Pushko J
Russell	SEI		Removing pipes, owing to
Schmitt	D/O		Clearing Strainers
Wright	RET		Computer room

Hydro. Hw Converter in service

PIC Hw Converter in service  
Seaward 57 Valve out of

FEAS checked with room

FB Vault empty in service  
addl change 17-B Vault in  
PAC Vault locked in service

11/12/16  
 Schmitt  
 Russell

11/12/16  
 Feb 3 High pressure  
 converter in service  
 2-10 pump is down  
 checked pump in 5

Feb 4 45-100-Bo  
 checked in service  
 checked pump in 5

Hydr 80 HU converter  
 checked boiler room

PIC checked boiler  
 HU converter in service

CRC checked mech room

HBE vault boilers in service  
 HBE vault pumps in service  
 oil line change at vault

GENERAL SERVICES ADMINISTRATION  
WASHINGTON 25, D. C.

EXHIBIT H

PBS P 5920.3  
June 24, 1960

## GSA ORDER

SUBJECT: Fire Prevention and Fire Protection for Warehouses

1. PURPOSE. This order promulgates the GSA handbook, Fire Prevention and Fire Protection for Warehouses.
2. OBJECTIVE. This publication provides fire prevention and fire protection criteria and technical guides to be used in the operation, acquisition and construction of warehouse and records storage facilities under the control of GSA.
3. DISTRIBUTION. This order is being distributed without the handbook. Copies of the handbook will be distributed in accordance with figure 1.
4. REPORTS. The following reports are prescribed by this handbook.
  - a. Report of Semiannual Self Inspection, Report Symbol PB-45.
  - b. Report of Annual Technical Survey, Report Symbol PB-44.
5. FORMS. This handbook prescribes the use of GSA Form 1258, Initial Fire Prevention and Fire Protection Report; GSA Form 1512, Warehouse Fire Prevention Inspection Report-Summary; GSA Form 1512A, Warehouse Fire Prevention Report Checklist; and GSA Form 1169, Fire Protection Valve Closed (Warning Tag). Supplies of these forms may be obtained through the usual sources.



KARL E. WALLACE  
Commissioner, Public Buildings Service

DISTRIBUTION: A, B, F, G, H, I

## EXHIBIT I

PBS P 5920.9 CHGE

ember 15, 1976

11. Linen and rubbish chutes. Linen and rubbish chutes present the special hazard of shafts containing combustible materials and shall be avoided unless justified by special operational needs. If linen or rubbish chutes are installed, the installation shall conform to the requirements for rubbish chutes, linen chutes, and flue fed incinerators in NFPA Standard No. 101, Lifesafety Code. Sprinkler protection shall be provided in all such chutes and shall conform to the requirements for building service chutes in NFPA Standard No. 13, Sprinkler Systems.
12. Special valuable, important or critical operations. With the exception of the requirements noted in pars. 4 and 5, above, for the protection of electronic and communications equipment, this handbook does not provide detailed guides for safeguarding special valuable, important, or critical operations or equipment that do not in themselves present a particular fire risk. As noted in chap. 1-2f, above, limited fire damage up to destruction of the contents of the room or area of origin, radiant heat damage to nearby areas, and smoke damage extending for a considerable distance from the point of fire origin is normally accepted. In situations where this level of damage cannot be accepted, additional safeguards may be necessary to protect against damage from adjacent or nearby operations. The safeguards may involve fire-resistant partitions, automatic sprinkler protection, special air handling arrangements, and/ or other special features. Each such situation must be individually considered and evaluated against the potential exposures. Appendix B and the Chief, Accident and Fire Prevention Branch, shall be consulted for guidance in such cases.
13. Laboratories. Firesafety in laboratories poses a need for careful design in construction, protection, and operations. It is desirable to consolidate laboratory space into separate buildings exclusive of other occupancies. If this is not practical, laboratory space shall be separated within a building from other occupancies by fire resistant construction meeting the requirements in chap. 4, above. Laboratories handling or storing chemicals, flammable liquids or flammable gases will be provided with complete automatic sprinkler protection regardless of the room size. All doors to laboratories will swing in the direction of egress. Standpipe provisions shall conform to the requirements in chap. 5, above. A manual fire alarm system will be installed in all laboratory buildings and in any building housing laboratories. With the exception of requirements for construction separation, complete automatic sprinkler protection, door swing, standpipes and manual fire alarm systems in laboratories shall conform to the NFPA Standard No. 45, Fire Protection for Laboratories Using Chemicals.

EXHIBIT J

PBS P 5920.9  
July 27, 1965



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# Building Firesafety Criteria

February 8, 1971

PBS P 5920.9 CHGE 1

## BUILDING FIRESAFETY CRITERIA

## TABLE OF CONTENTS

CHAPTER 1.	GENERAL
CHAPTER 2.	BASIC STRUCTURAL FIRESAFETY CRITERIA
CHAPTER 3.	SPECIFIC BUILDING FIRESAFETY CRITERIA
CHAPTER 4.	INTERIOR CONSTRUCTION AND ARRANGEMENT
CHAPTER 5.	MECHANICAL SYSTEMS
CHAPTER 6.	ELECTRICAL
CHAPTER 7.	MISCELLANEOUS SPECIAL OCCUPANCY FEATURES
APPENDIX A.	FIRE-RESISTANCE RATINGS
APPENDIX B.	RATIONALE
APPENDIX C.	LATCHING, LOCKING, AND ALARMING ARRANGEMENTS FOR BUILDING EXITS

## CHAPTER 1. GENERAL

1. PURPOSE. This handbook provides firesafety criteria for buildings designed and built under the charge or control of GSA, except for GSA-operated warehouses.
2. OBJECTIVE.
  - a. The objective of the criteria contained in this handbook is to provide reasonable safeguards against (1) loss of life, (2) fire exposure to the community, (3) loss of Government real and personal property, and (4) the interruption of Government operations. In the establishment of the criteria, careful consideration, based on sound engineering principles, has been given to the missions of the General Services Administration and other Federal agencies using GSA facilities, operational needs, and the requirements for prudent economy.
  - b. The users of this handbook, either GSA staff personnel or private architects and engineers performing professional services for GSA, are advised that the criteria in this handbook describe the full scope of facility firesafety features required in GSA buildings and therefore differ in important aspects from the firesafety criteria found in typical building codes. Building code criteria generally describe minimum requirements necessary to protect against loss of life and community conflagration, with the expectation that additional safeguards necessary to protect his own proprietary interests will be provided by the building owner. It is accepted good practice to exceed the requirements of building codes. The criteria in this handbook describe a level of firesafety providing for both the public safety and the Government's proprietary interests, and specific justification must be shown in any case where exceeding the requirements of this handbook involves additional expenditures or operational impediments.
  - c. It is not intended that this handbook will bind the designer to a single design concept, and alternate approaches that achieve the desired level of firesafety will not be regarded as a violation of the requirements of this handbook. Evaluation of the degree of firesafety provided by alternate proposals is a function of the Protection Division in the Central Office and the Protection Branches in the regions. Any deviations that change the level of firesafety must be individually justified in terms of better fulfilling the overall needs of the Government. In such cases the requirements of par. 4, below, apply.

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July 27, 1965

3. APPLICABILITY. The firesafety criteria described in this handbook are applicable to buildings being designed or built under the charge or control of GSA, except for GSA-operated warehouses. The firesafety criteria contained in GSA HB, Fire Prevention and Fire Protection for Warehouses (PBS P 5920.3), apply to GSA-operated warehouses.
4. DEVIATIONS. Changes in the level of firesafety from that outlined in this HB, except those changes which increase the level of firesafety without any significant increase in cost or impairment to operations, shall be authorized by the Commissioner, PBS. Justification for each such action shall be documented and recorded in the permanent building file.
5. NATIONAL FIRE CODES. In situations not covered by this handbook the National Fire Codes published by the National Fire Protection Association shall be used as guides. The Director, Protection Division, or Chief, Protection Branch, shall be consulted in such cases, as required.

perimeter of the building can be reached from either of two hydrants with 250 feet of hose and, where possible, shall be located at least 50 feet from any building.

6. AUTOMATIC SPRINKLER PROTECTION.

a. Automatic sprinkler protection shall be provided in the following situations:

(1) Throughout any building exceeding the height or area limitations set in chap. 3-2, above.

(2) In any area below grade which contains an occupancy of moderate or high hazard. In any area above grade which contains a high hazard occupancy.

(3) In any area above grade of over 1,000 square feet in size which contains a moderate hazard occupancy.

(4) Throughout windowless buildings or windowless floors of buildings or large windowless areas within buildings, except that such internal areas do not require sprinkler protection if the hazard of the occupancy is light, there is adequate firefighting approach available, and ventilation capable of removing the smoke from fire is present.

(5) Cooling towers of combustible construction under the conditions described in subpar. 10i, below, of this chapter.

(6) In any location where the maximum fire potential of the occupancy exceeds the fire-resistance capabilities of the structure.

b. Sprinkler systems may also be used in order to comply with the limitations on heights and areas as set forth in chap. 3-2, above, or as an economic measure to eliminate the need of maintaining fire patrols in the building.

c. Wherever sprinkler systems are installed, the sprinklered area shall be cut off from all surrounding areas by walls, with all openings protected, having a fire resistance at least commensurate with the maximum exposure on the nonsprinklered side of the wall, but not less than one hour.

d. All automatic sprinkler systems shall be installed in accordance with NFPA Standard No. 13, Sprinkler Systems, and provided with waterflow alarms.

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July 27, 1965

e. In cases of small systems, the requirement of d, above, may be waived to the extent that such systems may be supplied from a domestic water system of adequate size and capacity. Such arrangement is to be used, however, only when the protected area is isolated from other sprinkler systems or is the only sprinkler system in the building. Most commonly this situation occurs in buildings where the only area requiring sprinkler protection is the trash room.

## 7. STANDPIPE SYSTEMS.

a. Standpipes are required:

- (1) In buildings either four or more stories in height, or having a story 75 feet or more above grade.
- (2) On each side of any stage arranged or intended for theatrical, operatic, or similar use (i.e., involving movable scenery, rigging loft, etc.).
- (3) In large areas where there is a heavy concentration of combustibles (e.g., large post office workrooms or storage areas over 200 feet on the narrowest side).

b. Standpipes required by a(1), above, are to be equipped solely for use by fire departments and others trained in handling heavy hose streams. They shall be located preferably in stairwells with one riser for each stairwell, and shall be equipped with a 2½-inch valved outlet at each floor level. Two and one-half inch hose shall not be provided. Adapters (2½-inch - 1½-inch) shall be provided. One and one-half inch hose, hose racks, and nozzles shall not be provided unless specifically required by the local authority for fire department use. In each case the hose shall be of the polyester fiber, single-jacketed, rubber-lined type and the nozzles shall be of the combination spray straight stream shutoff type.

c. Standpipes required by a(1), above, may be of the so-called dry or preprimed type. Such standpipes shall be equipped with at least one fire department connection and at least a one and one-quarter-inch (domestic) water supply connection capable of keeping the pipe filled with water. For high-rise type buildings, approximately 20 or more stories in height, where the hydraulic lift may exceed the capabilities of fire department pumpers, the water supply for the standpipe system shall be designed by the Design and Construction Division to provide at least 250 g.p.m. at 50 p.s.i. at the highest outlet.

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July 27, 1965

d. Standpipes required by a(2) or a(3), above, shall be designed for both the use of the fire department and of the occupants of the areas involved. Such standpipes shall be spaced so that all portions of the area are within 30 feet of a nozzle attached by 100 feet of hose to the standpipe. Such standpipes shall be equipped with both 2½-inch and 1½-inch valved outlets and provided at each 1½-inch valved outlet, with 100 feet of 1½-inch polyester fiber, single-jacketed, rubber-lined hose, hose racks, and combination spray straight stream shutoff nozzles. A continuous or automatic water supply capable of supplying at least 35 g.m.p. at 25 p.s.i. shall be available at each 1½" valved outlet.

e. Standpipes exceeding 75 feet or four stories in height shall be at least 6 inches in diameter. Others shall be at least 4 inches in diameter. All standpipes in a building shall be interconnected and the interconnected system shall have at least one fire department connection. Those in buildings facing more than one street shall have at least two fire department connections, each located so as to be readily available from a different street.

f. Except as noted herein, standpipes shall conform to the appropriate requirements of National Fire Protection Association Standard No. 14, Standpipe and Hose Systems.

g. Polyester fiber, single-jacketed, rubber-lined firehose, available through Federal Supply Schedule, Class 4210, shall be used when replacement of new hose is required.

8. SPECIAL EXTINGUISHING SYSTEM. Normally, any area requiring an automatic fire extinguishing system shall be protected by an automatic sprinkler system. In special cases, however, extinguishing systems of other types may be needed. Each such installation shall be individually justified and designed. The following design criteria shall be followed when appropriate:

- a. NFPA Standard No. 11, Foam Extinguishing Systems
- b. NFPA Standard No. 12, Carbon Dioxide Extinguishing Systems
- c. NFPA Standard No. 13, Sprinkler Systems
- d. NFPA Standard No. 15, Water Spray Systems
- e. NFPA Standard No. 17, Dry Chemical Extinguisher Systems

No fire extinguishing system containing an anti-freeze solution or other material except air or potable water shall be connected to a potable water system.

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July 27, 1955

9. FIRE EXTINGUISHERS. RESERVED.

10. AIRCONDITIONING SYSTEMS.

a. Except as set forth herein, all airconditioning and ventilating systems for the handling of air not contaminated with flammable or explosive vapors or dust shall conform to the requirements of National Fire Protection Association Standard No. 90A, Airconditioning and Ventilating Systems Other Than Residence Type. Ventilation and air conditioning systems for hospital operating rooms shall also conform to the requirements of NFPA Standard No. 56, Flammable Anesthetics Code.

b. No stairwell, ramp, or other portion of the exit facilities of the building involved in the vertical portion of the exit pattern or in a protected hallway, leading from the discharge point of a vertical exit to the outside of the building, shall be used for the distribution or return of air.

c. Ducts shall conform to the requirements of NFPA Standard No. 90A. Any duct linings shall be of noncombustible construction and the total assembly of the duct lining, including the adhesive and any coatings or additives involved, shall have a fire-hazard rating not exceeding 25 for flame spread nor 50 for fuel or smoke development. Duct coverings and installations, including adhesives and vapor barriers, shall have a fire-hazard rating not over 25 for flame spread and 50 for smoke development and fuel contribution.

d. Whenever any concealed portion of the building is used as a plenum in an air distribution system, such space above shall not exceed 100 feet in any dimension. In situations where it is desired to use a plenum of larger dimension, the plenum shall be divided by noncombustible fire stop bulkheads of a minimum of 24-gauge galvanized sheet metal. The air distribution system shall be designed to avoid openings in the fire stop bulkheads. In any case where an opening must be provided, the opening shall be protected with fire dampers. If the space above a ceiling which forms part of a fire-resistive assembly is involved, the requirements of chap. 2-15f, above, apply.

e. The construction of shafts containing or used as vertical ducts shall be installed in accordance with the requirements for vertical shafts contained in chap. 2-12, above.

f. Automatic fire doors and fire dampers shall be provided in the air distribution and air return and exhaust systems as follows:

PBS P 5920.9  
July 27, 1965

d. Standpipes required by a(2) or a(3), above, shall be designed for both the use of the fire department and of the occupants of the areas involved. Such standpipes shall be spaced so that all portions of the area are within 30 feet of a nozzle attached by 100 feet of hose to the standpipe. Such standpipes shall be equipped with both 2½-inch and 1½-inch valved outlets and provided at each 1½-inch valved outlet, with 100 feet of 1½-inch polyester fiber, single-jacketed, rubber-lined hose, hose racks, and combination spray straight stream shutoff nozzles. A continuous or automatic water supply capable of supplying at least 35 g.m.p. at 25 p.s.i. shall be available at each 1½" valved outlet.

e. Standpipes exceeding 75 feet or four stories in height shall be at least 6 inches in diameter. Others shall be at least 4 inches in diameter. All standpipes in a building shall be interconnected and the interconnected system shall have at least one fire department connection. Those in buildings facing more than one street shall have at least two fire department connections, each located so as to be readily available from a different street.

f. Except as noted herein, standpipes shall conform to the appropriate requirements of National Fire Protection Association Standard No. 14, Standpipe and Hose Systems.

g. Polyester fiber, single-jacketed, rubber-lined firehose, available through Federal Supply Schedule, Class 4210, shall be used when replacement of new hose is required.

8. SPECIAL EXTINGUISHING SYSTEM. Normally, any area requiring an automatic fire extinguishing system shall be protected by an automatic sprinkler system. In special cases, however, extinguishing systems of other types may be needed. Each such installation shall be individually justified and designed. The following design criteria shall be followed when appropriate:

- a. NFPA Standard No. 11, Foam Extinguishing Systems
- b. NFPA Standard No. 12, Carbon Dioxide Extinguishing Systems
- c. NFPA Standard No. 13, Sprinkler Systems
- d. NFPA Standard No. 15, Water Spray Systems
- e. NFPA Standard No. 17, Dry Chemical Extinguisher Systems

No fire extinguishing system containing an anti-freeze solution or other material except air or potable water shall be connected to a potable water system.

## APPENDIX A

## List of Documents Reviewed At GSA on 6/8/79

1. Deed of Gift, Between Universal Studios and NARS, 12/10/70
2. Fire Protection for Archival Film Vaults, 4/26/73. Metro Fire Equipment, Inc. to Universal Studios.
3. Acceptance letter, signed by Lorber for Universal Studios, 5/9/73.
4. Universal Studios Specification for Fire Protection Systems for GSA File Vault, Building A, Suitland, MD., 5/30/73.
5. Drawing A330, Building A Fire Protection System, by Metro Fire Equipment, Inc., 5/30/73.
6. Ad Hoc Committee Report, Investigation of Fire In Cellulose Nitrate Motion Picture Film Storage, Building C, Vault 19, Suitland, MD., 8/29/77.
7. Ad Hoc Committee Report, Investigation of Fire in Cellulose Nitrate Motion Picture Film Storage, Building A, Suitland, MD., 12/7/78, including minority report.

## APPENDIX B

List of documents requested of T. Goonan, GSA, on 6/8/79 and results

<u>Item No.</u>	<u>Item description</u>	<u>Disposition</u>
1.	NBS Test Reports quoted in 1978 fire report.	Not available, per T. Goonan
2.	Eastman House fire incident report quoted.	Not available, per T. Goonan
3.	Bldg. A Sprinkler acceptance tests.	Not provided
4.	Contract for Air conditioning revision work.	Provided - Contract GS-00B-02960, dated Dec. 15, 1977.
5.	Contract for automatic sprinkler systems in B & C.	Provided - Contract GS-03B-78158, minus 3POA review.
6.	3POA inspections, visits, reviews and print reviews.	Items provided: Inspection report of 8/23/57, Survey of 1/17/77, memo of 10/17/77 quoting recent inspection, memo on pre-construction meeting 2/23/78, memo of 4/25/78 referencing 4/17/78 insp.
7.	Attendance records of NARS film inspection week of 10/13-27, 1978, conducting film inspection.	Unsigned, undated memo provided shows name, hours assigned, and total rolls inspected, average per hour and average time per roll.
8.	Number of cans inspected daily, inspection procedure and time per can.	Not provided
9.	Sprinkler system shutdown and re-open records for last half of 1978.	Not provided
10.	Sprinkler system inspection record for 1978, Bldg. A.	Not provided

11. Air conditioning maintenance service record for last half of 1978, Bldg. A.  
Hand written, intermittent log provided, covering complex, 9/5/78 to 12/2/78.  
Withdrawn after discussion.
12. Documentation for 35 psf as adequate for blowout panel.  
Not provided
13. Film load per vault, in cans and feet.  
Not provided. Weather for Dec. 5 and 6 provided.
14. Weather temperatures for October 26 and 27, 1978.
15. Log of supervisors' calls to PBS on high temperatures.  
NARS stated this log, maintained with the temperature log, was destroyed in the fire. Log for October was Murphy's possession, and copy to be sent to OSHA on 6/15/78. Received copy of log for Vault C, portions of which are shown as part of the report.

## Appendix C

## List of Documents Obtained Independently of GSA

1. PBS P 5800.32, Building Operational Review Guide.
2. PBS P 5850.IA, Buildings Maintenance Management.
3. GSA document GS-00B-01321, 5/7/73, revised 5/30/73, Survey Report, Air-conditioning-Safety, Film Vaults A, B, and C.
4. Hazard in the Handling and Storage of Nitrate and Safety Motion Picture Film, Eastman Kodak Company, undated.
5. Deadly Gases from X-Ray Films, Fire Engineering, 8/77. pp 60-64.
6. Evaluation Report on Occupational Safety and Health Programming Established by the General Services Administration FY 78 (Draft), Office of Federal Safety Health Programs, OSHA.
7. PBS P 5920.3, Fire Prevention and Fire Protection for Warehouses, 6/24/60.
8. PBS P 5930.9, Building Firesafety Criteria, 7/27/65.

## APPENDIX D

List of Documents Requested of GSA on 6/13/79 and Not Obtained.

All Documents related to operation of Building A, for the period of 1974-78.

1. Operational Evaluation Checklist, Form 1820.
2. Equipment Inventory List, Form 1736.
3. Annual Man-Hour Preventive Maintenance Requirement, Form 2105.
4. Operator Assignment, Form 1737.
5. Notice of Work Required, Form 283.
6. Preventive Maintenance Control Card, Form 1738.
7. Work Authorizations, Form 1897.
8. Equipment History, Form 1739.

APPENDIX 3.—LETTER FROM TED S. FERRY, CHAIRMAN, SAFETY DEPARTMENT, UNIVERSITY OF SOUTHERN CALIFORNIA

UNIVERSITY OF SOUTHERN CALIFORNIA  
INSTITUTE OF SAFETY AND SYSTEMS MANAGEMENT



May 14, 1979

Mr. Tim Ingram  
Government Information and  
Individual Rights Subcommittee  
of the Committee on Government  
Operations  
Rayburn House Office Building  
Room B-349-B-C  
Washington, D. C. 20515

Dear Mr. Ingram:

With reference to phone conversation on The GSA Suitland Fire, I did review the material sent to me by your office in two packets and a study of a similar event at the same location in 1977. A summary based on the material sent to me is enclosed. It has the limitations you might expect from such a review. The last few paragraphs offer some suggestions if you find it appropriate to pursue this matter in depth.

Very truly yours,

A handwritten signature in cursive script that reads "Ted S. Ferry".

Ted S. Ferry  
Chairman  
Safety Department

TSF:jk  
Enc.

Ted Ferry

REVIEW OF THE AD HOC COMMITTEE'S REPORT ON THE FIRE AT FILM  
VAULT A, SUITLAND, MARYLAND ON DECEMBER 7, 1978.

The review is divided into two areas, one commenting on Investigative Techniques and the other on Management Considerations.

Investigation Techniques

1. Qualifications of the investigator(s) are not cited, but doubt is cast on their ability by:
  - a. failure to pinpoint origin of the fire, at least by vault, let alone by location in the vault.
  - b. inability to determine causes or reasons for the fire, and
  - c. insertion of probable causes or reasons that could not be corroborated by even one point of verification let alone the 2 or 3 needed for credibility. While the "best guess" of causes is appropriate in the absence of any evidence, most of the evidence is available in this type of situation.
2. The investigation apparently did not consider some items, i.e.:
  - a. the role of dust in accelerating the nitrate decomposition process, and
  - b. the apparent lack of fire reporting or fire alarm deficiencies in building A, B, and C.

Ted Ferry

3. While the report abounds in "may's", "probably's", and "possibly's" in terms of cause factors, anything in Part XI could be either verified or discarded by expert investigation.
4. The tendency to search for a single general cause indicates a complete lack of knowledge about the investigative process. In turn, there is an absence of specifics on which to base corrective action.
5. The failure of anyone to insist, in this very important fire, on expert investigation places the whole process in doubt.
6. The draft testimony of May 2, 1979 (not a part of the report) prepared by Fire Chief Estep of the Prince George's County Fire Department clears up many points of the report and of earlier testimony. Chief Estep's report introduces firm and logical opinions; however, his points on origin, spread, and causes of the fire were not introduced with substantial corroboration by the early reports of Lt. Malburg (3) and Sgt. LaMay. Those earlier reports were the only ones submitted to the Ad Hoc Committee at the time of their convening. This raises the question of why Chief Estep's testimony was not available earlier.
7. The assessments (acquired separately) by Stephen Bush of the Library of Congress on the investigative techniques employed are valued and without bias in spite of a vested interest. There are other investigation techniques of value

available that he does not discuss in his paper on the 1977 fire. His recommendation, if followed, that multi-linear sequencing and analytical trees would have been of value would have thrown an entirely different perspective on the December 1978 investigation.

#### Management Considerations

GSA management deficiencies and involvement are present at every level and in every aspect of this fire. While it is easy to be a Monday morning quarterback, blaming everything on management, that is basically my finding.

Based only on the submitted statements of Prince George's County Fire Department Personnel, an assessment cannot be made of their operation. Several commendable actions took place in connection with the early detection, fighting of the fire, and investigation of the fire; however, only perceived problem areas are addressed.

1. There appears to be no excuse for the missing temperature readings.
2. Maintenance work in such areas should have been under constant safety surveillance or not permitted. Failure to provide for this rests with GSA or in the case of a major contractor could be delegated to his safety personnel. As an example the alteration and plugging of the sprinkler heads was inexcusable and escaped detection. The fact that it was done by a contractor is not an acceptable excuse. The same can be said for the water flow alarm failure. The

The continued or very frequent presence of knowledgeable safety personnel would have prevented many of the contractor originated mistakes. Since several of the contractor actions could have contributed to the fire, GSA management at several levels of policy, procedures and planning must be faulted for failing to provide the safety surveillance.

3. While the first line supervisor took fairly appropriate actions (there is some question on this) it is difficult to fault her for deficiencies in performance that could have been detected, overcome, or prevented if proper management and staff actions were carried out. Lack of explanation for the supervisor's absence until 10:15, lack of building communications, etc., are symptoms of management laxness or permissiveness.
4. The 1977 fire and the nature of the stored material apparently made little impression on management and staff above the first level. One such indication appears to be the lack of fire reporting communication or alarm devices for the vault buildings. The supervisor found it appropriate to drive to another location to report the fire. Granted there is an alarm system but it didn't work and there was no back-up.
5. Management and staff failure to insist on expert investigation in this fire reflects directly on them. Even a thorough investigation by a fire expert does not fill the requirements in a government agency for other than deter-

Ted Ferry

- mining the cause of the fire. The Ad Hoc committee seemed to have only a faint feeling that they needed to go beyond the fire investigator's report. If qualified experts are not available it reflects on management and if no provisions exist for then getting outside expertise, it reflects on the highest level of GSA management and staff.
6. The cause factor advanced at the end of Part XI has no basis (although it could be correct) and should not have been accepted. The Ad Hoc committee's willingness to settle for such an investigation indicates an almost total lack of understanding of the investigative process and the need for investigation beyond common sense reasoning. The fact that they probably did the best they could is a reflection of the appointing authorities' lack of knowledge or inability to sense a situation requiring special handling beyond a routine in-house committee.
  7. During the course of a thorough investigation when many causes of an accident (accidental fire) are uncovered, specific recommendations for keeping each of the cause factors from preventing another similar event should be presented. It becomes incumbent upon the investigator or reviewer of the report to specifically indicate who was responsible, was at fault, and in what way in order to recommend specific corrective actions. This is not to assess blame or liability (if prevention is the goal) but to assure good corrective measures. This report has failed completely to pinpoint causes or recommend specific, (general

recommendations have been made in Part XII) corrective actions. Even though specific, corroborated, cause factors are not identified, many deficiencies in the investigative, supervisory, staff, middle and higher management systems are apparent. These are not addressed except in a most cursory manner. There is a tendency to call this Ad Hoc report a white-wash, cover-your-rear-end operation. While it is natural to look out for one's welfare, I suggest that the main problem is rather a matter of lack of knowledge at operating and staff levels regarding mishap investigation and mishap prevention. Years of service do not necessarily assure competence in these areas.

8. The results of this lack of competence and understanding must certainly have repercussions far beyond this particular fire. In less apparent ways the management oversights that allowed this to happen are certainly creating a multitude of similar possibilities that simply have not caught our attention as accidents.

While specific corrective recommendations would be desirable as a part of my own review, this cannot be done without considerable study of the organizational structure; assessment of specific procedures and job descriptions of supervisors, staff and management, confirmation of certain job descriptions and a review of some additional organizational policies and regulations.

APPENDIX 4.—DEED OF GIFT TO GOVERNMENT OF UNIVERSAL PICTURES  
NEWSREEL COLLECTION

DEED OF GIFT

Reference is made to the so-called "Index" as defined in Paragraph 1.b. of the agreement dated November 25, 1970 between Universal Pictures, a division of Universal City Studios, Inc. and the National Archives and Records Service.

Universal Pictures, a division of Universal City Studios, Inc. does hereby give to the National Archives and Records Service, General Service Administration, acting for and in behalf of the United States of America, all of its right, title, and interest in and to said Index as referred to in the last preceding paragraph. This Gift shall be for exclusively public purposes.

The subject matter of this Gift will be delivered to the Donee at Donor's warehouse in New York, New York no later than December 20, 1970.

Nothing contained herein shall affect the rights of Universal concerning said Index as provided for in said agreement of November 25, 1970, including without limitation thereto, the provisions of Paragraphs 5, 9, 10, and 13 thereof.

Dated: December 10, 1970

UNIVERSAL PICTURES, a division  
of Universal City Studios, Inc.

By *J. E. Witt*

Its *Treasurer*

ACCEPTED: December 27, 1970

UNITED STATES OF AMERICA

By *Herbert E. Long*  
Acting Archivist of the United States

DEED OF GIFT

Universal Pictures, a division of Universal City Studios, Inc. does hereby give to the National Archives and Records Service, General Services Administration, acting for and in behalf of the United States of America, all of its right, title and interest in and to Cans containing Release Volumes 19 (Release Numbers 464 through 568 inclusive), 20 (Release Numbers 1 through 105 inclusive), and 21 (Release Numbers 106 through 208 inclusive) and Cans numbered 5171x - 6050x inclusive, all being the 1946, 1947, and 1948 material and the contents thereof, approximating 1,722,000 feet pre-print material photographed for inclusion into Universal newsreels including both the material utilized in released newsreels and out-takes. This Gift shall be for exclusively public purposes.

The subject matter of this Gift will be delivered to the donee at donor's vaults at Woodridge, New Jersey, and Kearny, New Jersey, no later than December 10, 1970.

Dated: November 18, 1970

UNIVERSAL PICTURES, a division  
of Universal City Studios, Inc.

By J. F. Witt  
Its James

ACCEPTED: November 25, 1970

UNITED STATES OF AMERICA

By James B. Rhoads  
Archivist of the United States

AGREEMENT

This Agreement made this <sup>25<sup>th</sup></sup> day of November, 1970, between Universal Pictures, a division of Universal City Studios, Inc., 445 Park Avenue, New York, New York 10022 (hereinafter called "Universal"), and the National Archives and Records Service, General Services Administration, Washington, D. C. 20408, acting for and in behalf of the United States of America (hereinafter called the "Government") under authority of 44 U.S.C. 2101-2114.

The parties agree to the following:

1. Universal will (as provided in Paragraph 11 hereof) transfer possession and ownership (subject to the rights reserved to Universal in Paragraph 2 herein) to the Government for inclusion in the collection of and for administration by the National Archives and Records Service, of the following personal property:

a. The containers and contents (hereinafter called "Collection") of approximately 9,882 - 3,000 foot film cans and 1,740 - 1,000 foot film cans containing pre-print material photographed for inclusion into Universal newsreels (1929-67) including both the material utilized in released newsreels and out-takes (less the containers and contents transferred by Deed of Gift dated November 18, 1970, from Universal Pictures, a division of Universal City Studios, Inc. to the National Archives and Records Service, General Services Administration, acting for and in behalf of the United States of America).

b. Index and reference material finding aids (hereinafter called "Index") which Universal now possesses with reference to the material transferred in accordance with Sub-paragraph a. above, and with reference to material transferred by Deed of Gift referred to in the parenthetical clause in said Sub-paragraph.

2. Universal reserves to itself the exclusive right (whether on a commercial or non-commercial basis) to exploit, reproduce, publish, exhibit, broadcast or transmit any of the films and materials transferred

to the National Archives and Records Service under Paragraph 1 above by any means now existing or which may exist in the future under any right to which Universal is entitled throughout any part of the world, by license, copyright, common law, statutory law or other right now existing or which may in the future exist.

3. Universal makes no warranty, express or implied, including without limitation thereto, any warranty regarding the fitness of the Collection or the Index for any purpose or purposes, except that Universal has the right to make this Agreement.

4. Universal may (but is not obligated) from time to time, as it deems appropriate to transfer to the Government its reserved rights in said Collection and Index or in any portion thereof. The dates of transfer will be at the sole discretion of Universal, except that if any or all of the reserved rights have not been transferred to the Government by January 1, 2021, such rights will be automatically transferred as of that date by this Agreement.

5. The Government shall maintain the said Collection and Index on the premises of the National Archives and Records Service in Washington, D. C. or environs.

6. The Government will maintain and administer the Collection and Index for its own use or exhibit at the National Archives for research and private study by the public. The Government will not permit any duplication for any use of all or any portion thereof, except upon the prior written consent of Universal.

7. The Government will arrange for the physical delivery of the Collection and Index from Universal's facilities to the Government within a reasonable time after execution of this Agreement, consistent with Universal's reasonable requirements. Such transfer and the storage by the Government will be at the Government's expense. Universal will have the right of reasonable supervision in regard to the transfer.

8. The Government will cause that portion of the Collection, which is on nitrate film, to be inspected at times and in a manner consistent with standard inspection procedures. The Government will convert from nitrate film to safety pre-print material all portions of the Collection which are found to be by the Government of sufficient historical or cultural significance. The determination by the Government of such significance shall utilize objective standards and shall be exercised with an emphasis in favor of preservation and conversion. The Government will advise Universal in

writing and identify any portion of the Collection which, in accordance with the last preceding sentence, the Government decides not to convert. Upon such advice, Universal shall have the right to discuss with applicable governmental personnel such decision. If after such discussion, the Government does not rescind its position as to non-conversion, Universal may require the return to it of the subject nitrate film. Such return shall remove such subject film from coverage of this agreement and full ownership thereof shall thereupon revert to Universal. That portion of the Collection which is on safety film will be inspected and appropriate preservation copies will be prepared when deemed necessary by the Government. The relative rights and obligations of the Government and Universal shall exist in the safety pre-print material and preservation copies to be prepared by the Government hereunder to the same degree and effect as to the Collection.

9. Universal will have free access to the Collection and Index at all reasonable times. The Government will, at Universal's request, direct and process orders for prints to be made either from nitrate or safety pre-print materials. The Government shall either cause same to be printed by or through its facilities, in which case Universal shall pay the Government its reasonable charges therefor; or Universal may request that the printing be done by a laboratory designated by it, subject to the Government's reasonable consent. In such latter instance, the Government will release and ship to the designated laboratory the required material at Universal's expense.

10. The Government will save Universal harmless from any loss or liability for personal injury, death, or property damage resulting from any occurrence involving the Collection and/or the Index while in the custody of the Government.

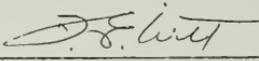
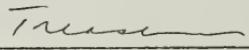
11. Universal will initially deliver possession of the non-nitrate (safety pre-print) portion of the Collection, and the Government will arrange for its delivery pursuant to Paragraph 7 above (at the Government's expense). Such delivery shall be effected by truck shipment which shall not in addition to said non-nitrate film transport any nitrate film unless included by inadvertence in the non-nitrate material. Thereafter, upon the Government's written request, Universal shall transfer possession (at the Government's expense) of that portion of the Collection which shall approximate 100,000 feet of nitrate film. After the Government shall have notified Universal that it has converted same from nitrate film to safety pre-print material or determined pursuant to Paragraph 8 hereof that it will not do so, Universal shall transfer (at the Government's expense) an additional 100,000 feet of nitrate film and said procedure shall continue until Universal has transferred possession of all of the Collection to the Government.

12. The Government agrees that the safety pre-print material to be transferred hereunder or converted by the Government shall be maintained in approximate equal amounts in not less than four vaults.

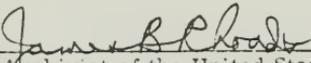
13. The Government will advise Universal of any change it makes in the numbering system used to identify the cans and their contents.

IN WITNESS WHEREOF, James B. Rhoads, being duly authorized has signed these presents on behalf of the United States of America, and Universal Pictures, a division of Universal City Studios, Inc., has caused them to be signed by a duly authorized officer thereof.

UNIVERSAL PICTURES, a division  
of Universal City Studios, Inc.

By   
Its 

UNITED STATES OF AMERICA

By   
Archivist of the United States

As a supplement to the Deed of Gift from Universal Pictures which was accepted by the United States of America on December 29, 1970, Universal Pictures a division of Universal City Studios, Inc., offers to furnish and install through its contractor and at no cost to the Government the necessary fire protection systems in Building C, Film Vaults, Suitland, Maryland, consisting of high speed automatic sprinkler systems, drain scuppers, and a fire door installation. We propose to include five years inspection and maintenance service for the sprinkler system. We will submit the proposed contract to GSA for approval and conform with the construction procedures that you may deem necessary.

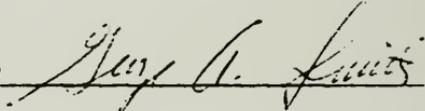
PBS/Bldgs. Mgmt./H.E. Nelson/13-26261/703 256-2004/4-19-73

DEED OF GIFT

Universal Pictures, a Division of Universal City Studios, Inc., does hereby give to the National Archives and Records Service, General Services Administration, acting for and in behalf of the United States of America, all of its right, title and interest in and to the entire Universal Newsreel Film Collection exclusive of that portion heretofore deeded to the National Archives. Such rights herein transferred specifically include the rights reserved to Universal Pictures in paragraph 2 of the Agreement between Universal Pictures, a Division of Universal City Studios, Inc., and the National Archives dated November 25, 1970. This gift is exclusively for public purposes.

Major portions of the subject matter of this gift have already been delivered to the donee at its film vaults in Suitland, Maryland, and the remainder of the gift will be delivered to the donee at such vaults by June 30, 1974, or as soon as practicable thereafter.

UNIVERSAL PICTURES, a Division of  
UNIVERSAL CITY STUDIOS, INC.

By 

Its Vice President

DATED: March 12, 1974

ACCEPTED:

UNITED STATES OF AMERICA

By 

Archivist of the United States

DATED: March 19, 1974

APPENDIX 5.—MEMORANDA RELATING TO SPRINKLER SYSTEM INSTALLATION AT FILM VAULTS

ACA INC.  
445 PARK AVENUE  
NEW YORK, NEW YORK 10022  
TELEPHONE 759-7500

May 9, 1973

Metro Fire Equipment, Inc.  
27 Franklin Street  
Bloomfield, N.J. 07003  
Att: Mr. Donald A. Knapp, President

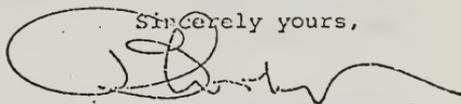
Re: Universal Studios  
Fire Protection for Archival Film Vaults  
Suitland, Maryland

Gentlemen:

This will acknowledge receipt of your letter of April 26th addressed to Universal Studios in which you quote the sum of \$26,995 for the installation of a high speed deluge sprinkler system at the National Archives Vaults in Suitland, Maryland. We accept the proposal as outlined in your letter. As per our discussion, we wish and you have agreed to include the final testing and inspection of all deluge valves and all similar equipment making up the proposed system. You also agreed to inspect and maintain this system without any further cost to us for a period of five years after completion of the installation.

We understand that shop prints should be ready within the next ten days at which time we shall get the G.S.A. to approve them prior to the commencement of installation.

Sincerely yours,



Ben Lorber

BL:tc

UNITED STATES OF AMERICA  
GENERAL SERVICES ADMINISTRATION

Region 3

Washington, DC 20407



DATE:

REPLY TO  
ATTN OF:

Chief, Accident and Fire Prevention Branch (3POA)

SUBJECT:

Sprinkler system  
Vault A  
Suitland, Maryland

Chief, Firesafety and Mobilization Branch (PBAF)

This confirms verbal information, relayed to Mr. Mike Slifka following an inspection of the subject sprinkler system by Mr. Przekop and Mr. Hawkins, Accident and Fire Prevention Branch, Monday, March 4, 1974. Due to an emergency, Mr. Slifka was unable to participate.

The following conditions were found:

1. Out of 27 vaults, nine have experienced leaks in joints and in sprinkler heads.
2. Many leaks are occurring in the 2½-inch pipes in the corridors.
3. Two 4-inch fittings at the OS&Y valve are leaking badly.
4. The contractor has intermixed galvanized pipes with black iron pipe, which is not considered good practice.
5. Unions were used on 2½-inch pipe. The code calls for flange-type fittings for this size pipe.
6. Sleeves were used for the pipe to pass through the vault walls, however, several of these were not sealed with material to equal the fire resistive rating of the wall.
7. Poor workmanship is evident throughout the system such as, pipes are overthreaded exposing at least 1-inch thread outside of the fittings, wrench marks indicate that the correction of leaks was not achieved in the proper manner, and some of the pipes appear to be out of round caused by overwrenching, all of which could contribute to leakage.
8. It was found that the scuppers are now in place.
9. Vault B has a conventional sprinkler system and Vault C has no sprinkler protection. Cellulose nitrate film is being stored in all vaults.

*Henry S. Hunt, Jr.*  
HENRY S. HUNT, JR.  
Chief, Accident and Fire Prevention Branch

MEMO FOR THE RECORDContractor's Position:

Note 1 of contract drawing 9ME1 required that the new sprinkler system for Building B & C, shall be identical to the existing sprinkler installation in vault "A". The system at vault "A", did not contain a 2" O.S. & Y. valve with ball-drip-and drain assembly for each of the flooding valves. On this basis, the contractor proceeded to submit the flood valve shop drawing which was approved without the inclusion of the ball drip and drain assembly and deletion of the 2" O.S. & Y. valve. Accordingly, the sprinkler system were subsequently installed without the referenced items.

Government's Position:

Specification section 15400 paragraph 7.1 cited that the contractor is required to install all appliances and equipment as specified and indicated in accordance with the manufacturer's instructions and recommendations. The approved manufacturer's drawing of the flooding valve did contain the ball drip and drain assembly as well as the 2" O.S. & Y. valve. In accordance with paragraph 2 of General Provisions, the specifications shall govern in case of difference between drawings and specification. Therefore these requirements supersede that indicated under Note 1 of Drawing 9ME1.

Contracting Officer's Decision:

The contracting officer on February 7, 1979, ruled in favor of the contractor. It is his decision that in view of Note 1 which permitted the omission of the ball drip and drain assembly and O.S. & Y. valve, it is not economically worth while for the Government to pursue the matter any further.

Sincerely,

RONALD N. MARIOTTI  
District Manager

*Mr. Macomb and I discussed the issue in detail on Feb 7, 79 and mutually agreed that the note on the drawing requiring that the system be identical to existing in 'A' were significant and contractor's interpretation that while this may not be a change system it was what the Gov. desired for this special installation. Omission of valve was not only satisfied but directed by the Gov's shop drawing. Ball drips are not a mandatory feature of Standard Trade Practice and since omitted in 'A' could not be required. Mariotti 3/2/79*

**OFFICIAL**

DEC 26 1978

John F. Feezer Co., Inc.  
6807 Washington Boulevard  
Elkridge, Maryland 21227

Subject: GS-03B-78158, Install Automatic Deluge Sprinkler System for  
Film Vaults B & C, Suitland, Maryland

Gentlemen:

Note No. 5 of Contract Drawing 9ME1 specified the requirement that the new safety switch for the new fire alarm control panel in the Transformer Vault be tapped ahead of the existing main overcurrent device. However, power for switch was taken off the existing main overcurrent device which is in violation of referenced requirement. Despite our repeated requests to correct this violation, this deficiency still has not been eliminated.

Cited as follows are deficiencies involving the alarm system:

1. There is no switch to silent the alarm bells at the Transformer Vault and FOB #3 Guard's Office.
2. Tamper switch in Building A is not properly adjusted.
3. Tamper switch in Building B is not wired.
4. Water flow in Building C incorrectly rings alarm bell in Building B instead of Building C. This condition of water flow is incorrectly shown at the FOB #3 panel as tamper in Building B.
5. Condition of tamper at Building C is incorrectly shown in FOB #3 panel as water flow at Building C.
6. Water flow in Building B incorrectly rings alarm bell in Building C.

2

7. Condition of tamper in Building B is incorrectly shown in FOB #3 panel as tamper in Building C.
8. Bell is not audible to personnel working inside the vaults.

Sincerely,

*Charles M. Walters*

*for* Y. MOY YIP  
Construction Engineer

cc:  
3PCOS-Official, Reading  
3PCOS-Yip

3PCOS:YMYip:pt:472-4502:12/26/78

MAY 11 1979

Director, Construction Management Division (3PC)

Sprinkler System, Film Vaults B & C  
Suitland Federal Record Center  
Suitland, MD

Director, Repair and Alterations Division (3PT)

Contract GS-03B-78158, PCN RMD 78158, required installation of a sprinkler system in buildings B & C. The system was installed to function as a wet type identical to that in "A" building. It is desired that the system be modified to function as a true deluge system to improve the level of protection for film.

Accordingly, please provide a Project Authorization, EPC \$62,000, as outlined by the attached estimate for the following work:

Film Vaults "B" and "C", install a 2" gate valve at each of the vaults in both buildings. Also provide a ball drip and drain piping at each deluge valve and set up Sprinkler System for deluge operation.

Signed S. E. Bolen

J. B. STEWART  
Director  
Construction Management Division

Enclosure

cc: 3PCOS-Official, Reading

Concurrences:

3PCOS [Signature] DATE 4/9/79  
3PCO [Signature] DATE 5/10

3PCOS:RNM:1bg:5/8/79 X24502

## APPENDIX 6.—MEMORANDUM RELATING TO AIR-CONDITIONER WORK

[April 4, 1979, memorandum from Y. Moy Yip, Public Buildings Service project officer, to Ronald N. Mariotti, PBS contract officer, explaining that, among other things, the air-conditioning project was pestered by a number of mechanical, electrical and architectural mistakes.]

Row:

'April 4, 1979'

The committee's report placing the blame for the fire on the contractor's activity of installing inserts in the vault ceiling reinforces the objection of performing work without vacating the building. The hazardous condition will be magnified ten-fold if full-scale modification operation is being performed at the rate of four vaults at a time. The containment of the dusts within the four vaults with the avoidance of exfiltration to the adjacent corridor areas is highly improbable if not impossible, particularly with the continuous need by the twelve operating personnel who are now performing film conversion, to go thru the renovated area in order to gain access to and from the remaining twenty-three occupied vaults.

The need to avoid the recurrence of another fire and avoidance of exposure of the working personnel to the hazardous conditions involved far outweighs the monetary expenditure of vacating the building. Furthermore the need

of the twenty seven vaults is gradually decreasing in view of the crash program now in progress of converting nitrate film to safety film and the availability of approx. 7 vaults in BUC B for the Using Agency's use.

The badly bungled design involving the mechanical, electrical, architectural, and the lack of awareness of the explosive nature of the stored nitrate films have continuously plagued this project. Since the change order involving work inside the vault has not been finalized and no work has been performed in the 27 vaults of BUC A, where the major cost overrun will occur, it will be advisable to terminate the contract now. A redesign should be made to correct all the outstanding design deficiencies, and include the need of additional feature of exhausting the film vapors which were one of the causes for the fire plus the incorporation of the safety recommendations by the committee

Y. Moy Yip

## APPENDIX 7.—NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS FOR NITRATE FILM VAULTS

[Excerpt from 1974 edition of National Fire Protection Association Pamphlet No. 40 entitled, "Standard for the Storage and Handling of Cellulose Nitrate Motion Picture Film".]

### Article 27. Archival Vaults

NOTE: Vaults intended for the storage of archival film (see Figure 4) shall be constructed in accordance with this section. Archival film is defined in Section 116(c).

271. **Construction.** Vaults shall be constructed in accordance with plans submitted to and approved by the authority having jurisdiction.

2711. Archival vaults shall not exceed 1,000 cubic feet in inside volume but where conditions of exposure to surrounding buildings result in little hazard, this volume may be increased with permission of the authority having jurisdiction. (See Sub-section 2714.)

2712. Walls and floors (except floors in contact with the ground) shall be constructed of not less than 8 inches of brick, 8 inches of hollow masonry units, 6 inches of reinforced concrete or 12 inches of hollow tile. Where the masonry units used may contain cracks or holes, the surface shall be plastered on both sides with a cement plaster to a thickness of at least  $\frac{1}{2}$  inch. Equivalent construction which will provide equal fire resistance and prevent escape of gases through wall cracks may be used.

2713. Unless resting directly on the ground, vaults shall be supported by masonry or steel of sufficient strength to carry the load safely. Beams shall rest at both ends on steel girders, iron or steel columns, or walls or piers of masonry. The supports shall afford at least 4 hours protection as determined by the Standard



garded as special and subject to approval of the authority having jurisdiction.

In no case shall a vent outlet exceed 25 feet in length for a vault exceeding 1,000 cubic feet.

2732. The outlet of each vent shall be above the roof and where vents discharge horizontally, a deflector wall or other device shall be provided to deflect gases upwards. Vents shall be located at least 50 feet horizontally from any window or other opening exposed thereby and a distance of at least 25 feet from any fire escape on the same or higher level.

2733. Vaults, especially those having a vent in the form of a window, shall be arranged in some manner which will protect the film in the vault against ignition by—

- (1) Rays of the sun, whenever the film in the vault is exposed to direct rays of the sun entering through the vent. This may be done by painting the glass in the vent opening a dark color.
- (2) Radiated heat entering through the vent opening, as from an exposure fire, whenever the vent is severely exposed by buildings or storage of combustible material, or by other openings in the same wall.

Note: A method of effecting this protection is to use a hinged insulated or hollow metal panel as a vent. Another acceptable method which has been used employs two battie walls inside the vault. The battie wall nearer the vent should extend from the ceiling down to within about 3 feet of the floor, and the inner battie wall from the floor up to within about 3 feet of the ceiling. Battie walls should be of substantial construction and should be so spaced and arranged as to afford the full required vent area from the film storage space to the outside.

2734. Each vent shall be protected against the weather by single thickness glass (1/16-inch thick) or by insulated or hollow metal hinged vents. The sash or vent shall be arranged to open automatically in case of fire by means of an approved releasing device placed inside the vault. The use of approved quick operating devices is recommended. The vents shall be arranged to open by both temperature operation and by internal pressure of 5 pounds per square foot. The area of the glass shall be the effective sectional area of the vent opening. No pane of glass shall be smaller than 200 square inches. Any protection equivalent to the above may be accepted in lieu thereof.

2735. A light wire screen not coarser than 1/8-inch mesh shall be placed in each vent. No bars or screens other than this light insect screen shall be placed in vent openings.

2736. Where there is a possibility of fire being transmitted from one vault to another, or to another building, through open

skylights, glass windows, light roof panels, or venting devices, adequate provision shall be made to prevent this possibility. This may be done by the provision of extended wing walls or roof parapets between such openings.

274. Racks. Archival vaults shall be provided with horizontal shelves and vertical baffles spaced so that not more than two containers, each containing 1,000 feet of film, may be placed on each shelf. The space between shelves shall be arranged so that the container covers may lift approximately 1/2 inch but cannot be lifted entirely off the container. In the case of three-color separation negatives a maximum of three standard rolls in a single container may be placed on shelves designed for this purpose and arranged so that the container cover may not be lifted off completely.

The shelves shall be separated by vertical barriers so that not more than one container may be placed between vertical baffles.

Vertical baffles shall be of noncombustible insulating material at least 3/8-inch thick (gypsum wallboard is acceptable) or of hardwood construction measuring not less than 1 inch in thickness. Shelves shall be of noncombustible insulating material not less than 3/8-inch thick or of hardwood not less than 1-inch thick and both vertical baffle and shelving shall be fitted tightly to the vault wall. Each shelf and baffle shall be of such width that at least one inch of the shelf or baffle shall extend beyond the container. Containers shall be placed on shelves in contact with the back wall. There shall be no thumb holes which will reduce this one-inch clearance. Racks shall be so designed in relation to the sprinkler system that the open face of each rack structure shall be adequately covered by water from the sprinkler systems.

275. Sprinklers. In new vaults, fire protection shall be provided by means of a wet pipe sprinkler system, or where speed of operation is important a deluge system may be used if it will be adequately maintained.

2751. Sprinkler protection shall be provided as prescribed in Sub-section 2651, except that sprinklers shall be provided in a ratio of one head to each 100 cubic feet of vault volume. Vaults of 1,000 cubic feet volume shall have a minimum of eight sprinklers. With the approval of the authority having jurisdiction, deluge or sprinkler arrangements providing adequate coverage with a lower ratio of sprinklers per cubic foot of vault volume may be used.

Note: The arrangement of sprinklers to give good distribution over the face of shelving is a matter requiring knowledge of sprinkler patterns and location and should be done only by properly qualified men

familiar with the particular type of sprinklers employed. When properly arranged, the use of automatic spray sprinklers or spray type fixed nozzles should provide better protection than the use of standard sprinklers uniformly arranged at the ceiling.

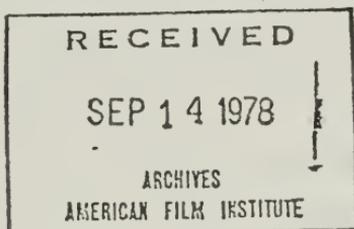
**276. Lights.** All lights in film vaults shall be at the ceiling and of the fixed type. Incandescent lights shall be enclosed and with guarded globes. A glass panel shall be installed below the tubes of fluorescent lights or in lieu thereof, wire guards or other non-combustible devices shall be provided to prevent breakage and keep the tubes in place. All wiring shall be in rigid conduit. All switches shall be outside the vault and provided with pilot lights to indicate whether vault lights are on or off.

**277. Heat.** Heating, when required to prevent sprinkler pipes from freezing, shall be by hot water or low pressure steam with automatic control limiting steam pressure to 10 pounds and the vault temperature to not in excess of 70° F. Radiators shall be placed at the ceiling, over aisle space with pipes and radiators protected with wire guards so arranged that no film can be placed within 12 inches of such pipes or radiators.

**278. Storage in Vault.** All film in vaults shall be in containers either in single or double roll containers, cardboard boxes conforming to DOT Specification 12-B or DOT shipping containers. The use of round cans is preferred to square cans. In any case the cover of the container used shall not lift off when the container is properly placed in the rack. Empty containers may be used for blocking the covers of single rolls if necessary.

APPENDIX 8.—AMERICAN FILM INSTITUTE-SPONSORED STUDY OF  
PRESERVATION OF NEWSREELS

Prepared for the American Film Institute



A National Program for the Preservation  
of American Newsreels

WILLIAM T. MURPHY

National Archives and Records Service

September, 1978

DISCUSSION DRAFT

Prepared for the American Film Institute

OUTLINE

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Introduction

The nation faces a crisis affecting the preservation of our national heritage as recorded in the American newsreels from 1911 to 1967. This is a crisis because the record is disappearing fast; at a rate of about 500,000 feet per year. As the film ages the chances of rescuing valuable pictorial information from certain destruction grow slimmer and slimmer. The rate of loss will not remain constant but will increase geometrically. Ten or twenty years from now millions of feet will have reached its maximum life expectancy. This widespread, inevitable deterioration, together with the fire hazard inherent in the storage of nitrate film, will cause the irreparable loss of all newsreel holdings that have not been copied on to safety film. All that will remain of our past will be snips of newsreel excerpts in television documentaries, bearing little or no relationship to the complete original record. The first decade of newsreel history (1911-1920) exists in but a few scattered issues. Less than 25% of the newsreels from the 1920s are known to exist. A great deal has already been lost from the 1930s and 1940s, the last years of the nitrate period. Not even the safety era negatives are entirely immune to damage and destruction. In sum, approximately 170 million feet of primarily negative newsreel film requires one form or another of preservation. A plan exists for holdings in the public sector; none exists for the millions of feet still in private hands.

The magnitude of the crisis and the necessity for a timely solution require intervention and support on a federal level. In the first place, access to records of the past are fundamental to the precepts of a democratic society. Moreover, society has a moral obligation to preserve

significant records of the past for the educational benefit of this generation and especially for the ones to follow. The preservation of newsreels will increase opportunities for the study and teaching of American history, and due to the uniqueness of the record, will allow the recreation of the past in a visual form. Secondly, over 40% of the newsreels relate to subjects of national interest and importance, particularly to the activities of the United States Government and its officials. The National Archives has accessioned newsreels on this basis, not as official records but as historical source materials complementing textual and nontextual records. Thirdly, from 15 to 30 million dollars will be required within the next twenty years to preserve newsreels, an amount well beyond the means of most educational institutions which would be likely to undertake this work. Finally, the National Archives, a federal agency, is best equipped to act as a central newsreel depository; The National Archives has forty years of newsreel experience to fall back upon; it already possesses the basis of a national newsreel collection and the goodwill of the newsreel owners.

The following report underscores the major problems surrounding the preservation of newsreels. Much of the information and observations are based upon the experience of the National Archives, long active in this field, upon personal visits to the major newsreel libraries, and through conversations with people in the field. This report is not meant to be exhaustive considering the limited time frame allotted for the survey.

Purpose

The purpose of this report is to outline the problems besetting the preservation of newsreels in the United States; furnish estimates of extant footage upon which to base further action; describe the major newsreel holdings; and recommend a program for a national effort to rescue newsreels from certain destruction.

This report focuses on the major newsreel repositories in the United States. Those in the private sector include Fox-Movietone News, Sherman Grinberg Film Libraries, Hearst-Metrotone News, and John E. Allen, Inc. Those in the public sector consist of the National Archives and Records Service and the Library of Congress. These six organizations have custody of over 95% of the American newsreels extant today. It is virtually impossible to survey newsreels that may be in the hands of individual collectors or in small institutions; nevertheless, these smaller collectors have a role to play. Estimates, however, must be based on the major holdings in order to develop realistic objectives.

This report is not a history of the American newsreel. The origin and administration of the American newsreel have been chronicled in Raymond Fielding's admirable study, The American Newsreel 1911-1967 (1972), which provided invaluable background for the preparation of this report. Nor is the report primarily an argument for the preservation of newsreels. That newsreels must be preserved is the principal underlying assumption of this report. It is assumed that the group for whom this report is intended, namely, the archival community, accepts the principles that newsreels should be preserved as political, social, and economic evidence of the 20th century; that newsreels should be preserved in a format approximating what was seen

by the newsreels' contemporary audiences; and that newsreels should be preserved under conditions ensuring the widest possible access for research and study purposes.

The purpose of this report, furthermore, is not to fault particular libraries, archives or commercial stock footage libraries for failing to bring about an earlier solution to the newsreel crisis. What is most important is that all of the organizations involved recognize the historical value of newsreels and are willing, within certain limits, to cooperate in the worthwhile enterprise of preserving newsreels as historical source materials.

#### Definitions

##### NEWSREELS

A definition of a newsreel seems necessary because of widespread misuse of the word to describe any footage of actuality. World War II official combat record footage, for example, is frequently and erroneously thought to be newsreel footage. Such usage has given the newsreel a generic meaning that is simply misleading. In the first place newsreels are edited films; they were produced in the United States by commercial companies from 1911, starting with Pathe, to 1967, ending with Hearst's News of the Day and Universal Pictures' Universal Newsreel. (Newsreels also appeared earlier and later in Europe). They appeared semiweekly as "one-reelers" and covered six to ten stories in seven to eleven minutes of running time. The newsreels followed a basic formula in the presentation of stories, including international and national topics of importance as well as much ephemera such as sports, accidents, and fashion shows. Occasionally special editions were devoted to a single subject such as an election or inauguration. In the pretelevision era newsreels depended upon speed,

immediacy, and visual impact. The topics illustrated were merely designed to highlight events. They were not meant to show events in depth nor show their relationship over a period of time. The newsreel was not a documentary film. Nor should the March of Time issues be considered a newsreel although MOT outtakes have newsreel value. MOT went beyond the surface value of news, treated its subjects in more depth, and tried to demonstrate cause and effect.

#### OUTTAKES

A second part of the definition of a newsreel must also include the outtakes. The unedited portions of newsreel footage not utilized in the final release version are called outtakes. Obviously newsreel cameramen shot footage in excess of what was needed for the final cut. This could mean as much as twenty feet to one, but more often than not it meant ten to one. To a very great extent these outtakes have been saved by the newsreel libraries, making the problem of newsreel preservation much more complex than it would appear. But at the same time the very existence of outtakes offers the possibility of access to significant historical footage which was eliminated from the final release versions during the editing process and, consequently, not seen by contemporary audiences.

In addition we must include other unedited footage which was not utilized in any story at all because the newsreel editors found it unsuitable for one reason or another. If such footage held potential usefulness for a later date, like the outtakes, it was added to the stock shot reserve.

Preservation Criteria

Newsreels in the private sector are being saved essentially for their "stock shot" value, that is, for the potential they represent in dollars in the sales of excerpts to television and motion picture producers who wish to incorporate such footage into new productions. With the exception of the Hearst library no longer maintained as a individual unit, newsreel stock shot libraries aim to be financially self-supporting. Commercial sales are therefore the first priority, perhaps even the only priority.

Among the five majors that dominated the history of the American newsreels only Fox and Hearst retain their original archives. In view of the commercial goals, however, these newsreel archives are company records only in an incidental or secondary sense. The Pathe and Paramount news archives were eventually sold to the Sherman Grinberg Film Libraries. This poses the question whether these newsreels should still be considered the archives of Paramount and of Pathe since the continuity of ownership and custody has been broken. Reality, however, demands the preservation of what survives or nothing at all. Only Universal Pictures has shown a genuine concern for preserving a record of its newsreel past by its generous donation of the Universal Newsreel Library to the National Archives, a donation that went beyond an obvious tax advantage.

The major holdings of American newsreels are briefly summarized below:

	Nitrate	Millions of Feet	
		Safety	Total
John E. Allen, Inc.	15		15
Fox-Movietone News	49	24	73
Sherman Grinberg Film Libraries	24	2	26

	Millions of Feet		
	Nitrate	Safety	Total
Hearst-Metrotone News	20	9	29
Library of Congress		7	7
National Archives	<u>27</u>	<u>16</u>	<u>43</u>
	135	58	193

## EDITED NEWSREELS

Ideally, all edited newsreels should be preserved much like the way newspapers are microfilmed and preserved in serial order. Newsreels should be preserved for their unique pictorial value. There is no other systematic motion picture record of American civilization until well into the television era. The organic unity of the newsreel series is basic to its archival integrity. A selection within a newsreel series would be unwise; it would be like choosing an issue of a newspaper or a magazine, a choice which could not be made to satisfy future research needs.

Newsreels should be preserved not only for their pictorial value but also for their message value as reportage. Editorial opinion and interpretation are part of their historical significance. The selection and presentation of the news had a direct correlation to the public perception of international and national events and to the perception of public personalities. Historians are paying more and more attention to the relationship between media and society as evidence of social change and to the medium itself as an active agent of communication. The difference of editorial opinion from one news company to another was important; the frequency of appearance of certain topics (like Nazi Germany) and the depth of coverage were also important distinctions. Although there was some duplication of coverage, the points of view differed.

In any case, the redundancy of coverage was minimal during the nitrate era. This point can easily be ascertained by a cursory review of the newsreel release sheets which summarize each issue. The 1920s and 1930s were noted for the spirit of competition that prevailed among cameramen. Newsreel companies had cameramen all over the world. They bought exclusive rights to footage shot by freelancers. They purchased footage from foreign companies. The selection of newsworthy stories and the amount of screen time allowed showed great variation from company to company. Some used live sound on certain stories while others chose to use a voice-over narrations. Full coverage of President Franklin D. Roosevelt's speeches, for example, would have to be pieced together with footage from different companies.

Since all the edited newsreel series have historical value the task that remains is to draw up categories of priorities for preservation. Newsreels of the period 1911-1920 are no longer extant in serial order, but single issues should be dealt with individually. The remaining nitrate-era edited newsreels should receive the highest priority. Priorities should be established in chronological order by decade beginning with the 1920s. Fox should receive the highest priority for each decade because of the magnitude of its holdings. Under ideal circumstances all the valuable edited footage from each decade should be copied and preserved from each newsreel company before going on to the next decade. This depends on the willingness of the newsreel owners to negotiate agreements.

#### OUTTAKES

Although there is some consensus in the archival-historical community as to the need to preserve newsreels in serial order, the need to preserve outtakes may not appear as necessary or urgent. Actually newsreel outtakes

represent the submerged part of the iceberg since they are much more extensive than the edited stories. Outtakes will serve the needs of historians and documentary filmmakers for future generations for the following reasons:

- They represent relatively unadulterated film evidence of past events.
- They show events in far greater detail than was permitted in the brief edited stories.
- They serve as a basis for evaluating the biases of the newsreel editors in selecting shots for a finished story.
- They offer more possibilities for original film research in documentary productions.

The safety-era outtake negatives will probably survive many years without further duplication, but the nitrate negatives must be copied if they are to survive. To satisfy the future needs of historians and other scholars and those of documentary filmmakers, outtakes relating to international news events, to the United States Government, and to other topics of national significance must be copied and preserved. Limited selections can be made from other newsreel subjects such as sports, human interest stories, transportation, accidents and personalities. A team of appraisers, following guidelines yet to be established, would be needed to make selections. It is estimated that such selections made on the basis of critical judgment would amount to 40% of the nitrate outtakes.

Additional appraisal and selection might be unnecessary if, after the nitrate has been provided for, the newsreel owners are willing to transfer physical and/or legal custody of the safety-era negatives. Only comparatively minimal preservation efforts would be needed for these negatives, namely, to inspect, repair, and clean the negatives and make an inexpensive video copy for

reference. The cost of making selections would probably not be worth the time in view of the benefits that would be derived by saving all the safety footage. From an historical viewpoint the advent of television news somewhat diminishes the uniqueness of safety era (1950-1967) newsreels as visual evidence. One should bear in mind, however, that network television news materials from the 1950s were not systematically saved and that live broadcasts of news events were not usually copied on kinescopes, nor saved on video tape. So newsreel and television materials are not mutually exclusive.

#### Technical Considerations

##### PROJECTION PRINTS

Several existing conditions militate against the restoration of newsreels to their original form. First, it is unusual to find positive prints in serial order. Due to space limitations and the fear of unauthorized copying newsreel owners periodically destroyed prints after their distribution ended. Consequently most of the newsreels that survive today are in a negative format. There are some exceptions to this rule:

--Prints saved by Universal for the period 1955-1967

and transferred to the National Archives

--Other prints received by the National Archives, including

Paramount News, 1940-1957

Fox Movietone News, 1957-1963

News of the Day, 1963-1967

(NARS acquired prints according to this chronology due to the closing down of newsreel production by these companies.)

--Various series of copyright deposit prints received by the Library of Congress, 1941-1967. (See page 20).

From the above it can be said that no newsreels survive intact and in series prior to Paramount News dated 1940. This is most unfortunate since the pre-1940 films are the most unique from an historical point of view.

The newsreels surviving today in the private sector consist largely of 35mm original or duplicate negative. These negatives are virtually all black and white. Color was only used experimentally.

#### NITRATE-BASED FILM

For the period up to the early 1950s, newsreels were produced on nitro-cellulose film stock, a highly flammable and chemically unstable photographic base chemically akin to gun cotton. Like the rest of the motion picture industry, newsreel producers switched to safety triacetate for the period after 1951-1952. Nitrate film persists as the foremost preservation problem in the film archives. Nitrate has a life span of roughly 60 years under good storage conditions. Most of the serially released newsreels of the 1911-1919 period have disintegrated before safety copies could be made. Similarly, the films from the 1920's, 1930's and 1940's will be lost if no action is taken to make safety copies.

#### STORAGE CONDITIONS

Some general observations can be offered about present storage conditions of newsreels. First, almost all nitrate vaults are built to National Fire Code specifications governing the storage of nitrate film, that is, the vaults are constructed so as to contain or minimize the burning effects of nitrate fire. Except for the Fox vaults in Ogdensburg, New Jersey, the others are equipped with directional blowout vents, heavy duty steel doors, racks limiting the number of cans in each vault, and sprinkler systems. The Fox vaults in Ogdensburg, New Jersey, because of their rural isolation in a hillside do not have sprinklers; a fire will destroy the entire contents of

vaults without sprinklers. The Fox, Hearst, and Grinberg vaults were built with the safety of people in mind, especially in congested urban areas like midtown Manhattan. They are not maintained for the preservation of nitrate film but only as a safety measure in the event of fire. Even so, a nitrate fire in a congested area could easily spread by the emission of shooting flames. None of the vaults inspected had adequate air conditioning despite the evidence that temperatures of less than 55° F and 50% RH retard the decomposition process and minimize the chance of self-combustion to which nitrate film is subject. None of the private companies had a daily temperature reading program. None had an annual or semiannual can-by-can inspection program to search out and eliminate dangerous decomposing film. As film ages accompanied by decomposition the chance of fire due to self-combustion increases. Fox and Hearst have experienced fires in past years. The National Archives experienced a nitrate fire on August 29, 1977. George Eastman House recently experienced a nitrate fire but no newsreels were involved. The point is that, in addition to disintegration, valuable nitrate newsreels are subject to loss due the fire hazard inherent in the storage of nitrate film.

#### SHRINKAGE AND BRITTLINESS

Another factor which works against long term preservation of newsreel film is the problem of shrinkage and brittleness. The ~~rate of~~ shrinkage can be as much as 2 or 3%. And the loss of viscosity causes buckling and separations of splices. The longer the archival community waits to convert nitrate film to safety copies the more difficult, tedious, and expensive the handling and processing. More modern triacetate films are less susceptible to atmospheric variation and therefore are not as difficult to work with.

## HANDLING NEGATIVES

Another factor affects both nitrate and safety newsreel film. All of the commercial newsreel libraries conduct reference service from the negative copies. This means that negatives are routinely handled in the newsreel libraries, mostly on manual rewinds with Ace viewers. One library is using automated equipment part of the time. Although their staffs have had many years of experience in handling film, special precautions are still necessary when handling negatives. Occasionally researchers of varying degrees of experience are left to their own devices. Newsreel libraries, except for the most selective subjects of potential commercial value, will not make safety copies for preservation let alone positive copies for reference.

## OTHER FACTORS

Extant newsreel still intact are especially valuable prior to 1950 because they may contain unique information. Combined negatives are not generally encountered until well into the safety period. The nitrate negatives, on the other hand, are broken down into smaller rolls according to story. Many stories are missing or deteriorated. Separate narrative sound tracks were not usually saved since they had little or no stock shot value. What relatively little sound survives among the nitrate negatives consists mainly of synchronized speeches. Newsreel prints in collectors' hands may be the only source of narrative sound for the nitrate period. Only the narrative scripts for Universal Newsreel and Movietone News have been located.

## VIDEOTAPE

Any notion that video tape will serve as a panacea for newsreel preservation should be dismissed. First, video tape is not a permanent record medium because of problems inherent in permanently binding magnetic oxide to the base and the problem posed by "print thru" over long periods of storage.

Second, shrunken nitrate cannot be satisfactorily transferred directly to a video image without considerable loss in image quality; it also poses the danger of damaging the nitrate film itself. Video tape, however, is quite satisfactory as an inexpensive reference copy but not as a preservation copy. The National Archives has a program of transferring new fine grain master positives made from nitrate negatives to video tape cassettes at a cost of less than \$1 per minute. The transfers are made on a Steenbeck table viewer equipped with a video camera (with negative or positive polarity.) This system utilizes a revolving prism instead of the intermittent movement common to most projectors and film chains. The tension under the intermittent system increases the risk of damage from scratches or tears. Made from a new fine grain master, the video image is quite satisfactory for study purposes. Video tape can be especially useful for newsreel preservation for the period after 1950, namely, the safety-triacetate era. The safety negatives that largely comprise this period can be transferred directly to video tape for reference and study purposes. This method is much cheaper than making 16mm or 35mm positive prints.

Newsreel Archives and Libraries

JOHN E. ALLEN, Inc.  
116 North Avenue  
Park Ridge, N. J. 07656  
201 391-3299  
Contact: Mr. John E. Allen, Jr.

The Allen company is primarily a specialized motion picture laboratory with newsreel holdings that were acquired commercially for purposes of resale as stock footage. It is a family-owned and operated company, with an impressive array of printing equipment for handling shrunken nitrate film. Nitrate vaults have been constructed adjacent to the laboratory facilities.

Total Holdings: 15 million feet (nitrate)

Series: Kinograms, 1920's-1931  
 Telenews, 1948-1954

Finding Aids: Telenews Card Catalog. 48 ft.  
 Kinogram Subject Catalog.  
 Looseleaf binders prepared by Allen's  
 staff; includes non-Kinogram footage as  
 well.

Microfilm: Yes.

FOX-MOVIEZONE NEWS, Inc.  
 460 West 54th Street,  
 New York, N. Y. 10019  
 212 265-2925  
 Contact: Mr. Jack Muth  
 Additional vaults: Ogdensburg, N. J.

Movietone News is a division of the 20th Century Fox Corporation assigned with the responsibility of promoting the sale of and servicing the Fox newsreel footage. Fox News or Fox Movietone News was the largest and most important of the newsreel operations. It produced newsreels from 1919 to 1963. Fox's international coverage was extensive and in 1927 it pioneered the use of optical sound in the theatrical motion picture industry. Its catalogs are enormous. The personality index, for example, is virtually exhaustive in its references to 20th Century political leaders. Two years ago the management of Fox-Movietone News was expanded and an effort was made to promote the sale of newsreel footage. Additional staff was hired and the research room improved considerably. In 1976 Fox and the National Archives signed an agreement in which NARS would pay for the cost of converting the Fox Silent News nitrate film, 1919-1930, at Fox's laboratory. The agreement provided that safety film prints are to be stored in the National Archives but Fox

retains its rights over the footage for 50 years.

Fox, unfortunately, went further than the other companies in rearranging its footage for the silent period. In brief, the edited releases and out-takes were recanned and renumbered according to an elaborate subject classification system, modeled after a government correspondence file manual. This makes restoration of the original newsreels in their original order very difficult. What remains of the sound library era, more or less, reflects the serial release of Fox Movietone News.

Total Holdings:	49 million feet (nitrate) 24 million feet (safety)
Series:	Fox (Silent) News 1919-1930 Fox Movietone 1927-1963 Telenews
Finding Aids:	Silent Library Classification Manual. 1919-1930.  Fox News Numerical Era Catalog. 1919-1930. 193 ft.  Fox News Dope Sheets. 1919-1930. 40 ft.  Fox News Continuity Sheets. 1919-1930. 1 ft.  Movietone News Subject Catalog. 1927-1963. 1456 ft.  Movietone News Continuity Sheets. 6 ft.  Movietone News Dope Sheets. 168 ft.  Movietone News Television Edition Continuity Sheets. 4 binders  Records of Negatives Received. 1928-1952. 4 ft.  Hearst Continuity Sheets. 1936-1948. 1 ft.  Production Files. 1919-1963. 120 ft. Index to 16mm Footage by Cameraman. 71 ft.

Index to 35mm Footage by Cameraman.  
101 ft.

Microfilm: None.

SHERMAN GRINBERG FILM LIBRARIES, Inc.

630 9th Avenue  
New York, N. Y. 10036

212 765-5170

Contact: Mr. Bernard Chertok

Also: 1640 N. McCadden Place  
Hollywood, California 90038  
213 464-7451

Contact: Mr. Sherman Grinberg

Grinberg Film Libraries is a commercial stock footage company that has acquired possession of and rights to Pathe News and Paramount News. It also has purchased smaller collections, including some Kinograms. Grinberg's main activity, however, is not in selling newsreel footage but in the servicing of ABC Television News Film. ABC is more accessible for outside use than NBC or CBS news footage. At Grinberg's offices in midtown Manhattan there are separate storage facilities for nitrate and safety film. The Pathe News negatives are stored in the Hollywood office, Grinberg has one unique policy in that it requires its newsreel customers to pay for 35mm fine grain masters before reduction copies are made. These fine grains are retained by the library, so in effect there is some selective preservation work going on but determined by the customers.

Total Newsreel Holdings:

2 million feet (safety)  
24 million feet (nitrate)

Series:

Pathe News, circa 1900-1956

Paramount News, 1927-1957

Kinograms (very incomplete)

Miscellaneous private collections

Findings Aids:

Paramount News Card Catalog. 350 ft.  
1927-1956

Paramount News Continuity Sheets.  
1927-1955. 3 ft.

Paramount News Caption Sheets.  
1954-1956. 10 ft.

Warner Pathe News Cards.  
1937-56. 2 ft.

Pathe Journal (French) Continuity  
Sheets. 1957-64. 1 ft.

Microfilm:

Yes.

Paramount News. 189 rolls

Pathe News. 223 rolls

Kinograms. 25 rolls

Others.

Hearst Metrotone News  
235 East 45th Street,  
New York, New York 10017  
212 682-7690  
Contact: Mr. Ted Troll  
Vaults: 1117 43rd Avenue,  
Long Island City, New York

The Hearst newsreel library is now part of King Features Syndicate, a division of the Hearst organization. William Randolph Hearst began producing newsreels in 1914; domestic newsreel production ceased in 1967. The library exists today mainly for the in-house production needs of King Features. Footage is occasionally sold to outside producers, but this is at best a sideline activity and does not appear to be particularly encouraged. The Hearst library has little or no footage from its historic activities prior to 1920; from 1923 to 1929, Hearst produced International Newsreel. Today only about 250,000 feet survives from that era. Hearst produced Hearst-Metrotone News and later News of the Day, making it the oldest American newsreel company. During the 1950's Hearst purchased footage from Telenews under license.

Current estimated losses are about 100,000 feet per year, which is probably a conservative figure.

Total Holdings: 9 million feet (safety)  
20 million feet (nitrate)

Series: International Newsreel, 1923-1929  
MGM News, 1928-1930  
Hearst Metrotone News of the Day,  
1929-1967  
Telenews, 1950's.

Finding Aids: International Newsreel Synopses Sheets  
1919-1929. 5 ft.  
International Newsreel Subject Catalog  
Sheets. 1919-1929 6 ft.  
MGM News Synopses Sheets, 1928-1930. Negl.  
News of the Day Synopses Sheets,  
1934-1967. 2.5 ft.  
News of the Day Subject Catalog,  
1934-1967. 448 ft.  
Telenews Daily Synopses Sheets.  
1954-1962. 2 ft.

Microfilm: None

LIBRARY OF CONGRESS  
Motion Picture Section  
Washington, D.C. 20540  
202 426-5840  
Contact: Mr. Paul Spehr

The Library of Congress acquired prints of newsreels under the authority of the copyright law. These prints date generally from 1941-42 to 1967. For the nitrate period, the Library made reduction 16mm negatives and prints. Because both the National Archives and the Library of Congress have been active in newsreel collection there is considerable duplication among series that are well protected while other series go unaccounted for.

Total American Newsreel Holdings: 7 million feet (safety).

(Note: This footage count is not included in the 170 million feet requiring some form of preservation).

Series: Universal Newsreels, 1943-1967  
 News of the Day, 1941-1967  
 Movietone News, 1942-1955  
 Paramount News, 1941-1945; 1955-1957  
 RKO Pathe News. 1942-1951 (a few issues)

(Note: There are many gaps in these runs).

Finding Aids: Synopses sheets are generally available in chronological order. But there is no subject catalog.

Microfilm: None

NATIONAL ARCHIVES AND RECORDS SERVICE  
 Motion Picture and Sound Recording Branch  
 Washington, D. C. 20408  
 202 523-3236  
 Contact: Mr. William T. Murphy  
 Additional Vaults: Suitland, Maryland

The National Archives, entrusted with the care of the Federal Government's permanently valuable records, began collecting newsreels in the 1930's under the authority of the National Archives Act of the 1934. Today the National Archives has numerous scattered issues of newsreel history, including foreign newsreels from World War II captured from the Axis or exchanged with the Allies. Most of these newsreels are fully cataloged. Reference prints are generally available except for Universal which is limited to 1955-1967. Earlier Universal footage now being converted to safety film is also being transferred to video cassettes for reference purposes. Clearly, Universal is the most significant part of the newsreel holdings. The National Archives also has custody of the March of Time stock film library. Although

the March of Time issues are not properly speaking newsreels, the March of Time organization acquired a great deal of newsreel footage over the years, mainly from Fox, which can still be found among the outtakes.

Total American Newsreel Holdings: 27 million feet (nitrate)  
16 million feet (safety)

Series: Universal Newsreel, 1929-1967  
Paramount News, 1940-1957  
Fox News, 1919-1930 (in progress)  
Fox Movietone News, 1957-1963  
News of the Day, 1963-1967  
United News, 1942-1945  
March of Time, 1935-1951 (outtakes contain newsreel footage)

Finding Aids: Universal Newsreel Subject Catalog, 1929-1967. 700 ft.  
Universal Newsreel Synopses Sheets, 1929-1967. 38 binders.  
Universal Newsreel Production Files, 1929-1967. 150 ft.  
March of Time Subject Catalog, 1935-1951. 140 ft.  
March of Time Production Files, 1935-1951. 33 ft.  
National Archives General Catalog. Contains entries for Paramount, Movietone, News of the Day, and United News.

Microfilm: Universal Catalog and Synopses Sheets.

Recommendations

## PRINCIPLES

1. The need to preserve newsreels requires national recognition by the United States Congress and some of the money now being made available for the preservation of films should be earmarked specifically for newsreel preservation.
2. The National Archives should receive continued recognition as the central repository for the preservation of newsreels. This recognition was reaffirmed in the NARS-Library of Congress agreement of 1975. Should NARS not be able to fulfill this role, then other national, regional or local institutions ought to be encouraged to assume a share of the burden, coordinated by a national institution such as the American Film Institute.
3. The Library of Congress should transfer its newsreel holdings to the National Archives to eliminate unnecessary duplication of effort in the Federal Government in terms of cataloging, preservation, storage, and service to the public. There is every indication that the copyright owners will consent to this transfer. The National Archives should consider giving up feature films for the newsreel transfer.
4. The terms under which MCA-Universal placed its newsreels in the National Archives would be the most advantageous for the public inasmuch as Universal has given all rights and title to the people of the United States. Universal has even paid for temporary staff and the installation of a sprinkler system. Time Inc. placed all but the edited issues of March of Time in the public domain when it donated its MOT Stock Film Library to the National Archives.

It is clear, however, that the other private companies with newsreel holdings would not accept such terms as long as they believe that considerable income can be derived from the sale of newsreel copies. The National Archives agreement with 20th Century Fox, therefore, should serve as a better model for persuading the newsreel owners to act in the national interest. The basic provisions are:

- That safety triacetate or polyester copies should be furnished at a cost basis; and
- That the receiving institution will agree to honor duplication and sale rights imposed by the donor for a fixed period of time after which the materials will pass into public domain.

All the owners appear favorably disposed to such negotiation since an agreement will result in the preservation of their legal property which otherwise would eventually deteriorate; another advantage is that the costs of storing, maintaining, and servicing their newsreel footage will be taken over by the recipient archives while the donor still exercises commercial rights to the material. As for companies with high net income from its other activities, the tax advantage may seem more attractive than potential stock footage income. This line of argument carries more weight with 20th Century Fox and Hearst than with Allen or Grinberg. To receive a tax benefit for newsreel donations to a public archives the donor would also have to transfer all rights and title.

5. One more principle that should be worked into an agreement is that non-profit educational use of newsreel reproductions should be permitted without royalty or license fees. Such use must be narrowly defined to exclude those companies who make films for distribution

to schools on a profit basis. This principle was not made part of the NARS-Fox agreement. However, the newsreel owners should not object because they are not earning any income from schools; and making reproductions of footage on this basis would provide a valuable public service.

6. Finally, before the records themselves deteriorate the newsreel continuity sheets, made on acidified nonpermanent paper, should be compiled into a multi-volume catalog of newsreel stories along with a subject index. This will at least provide a record of what was produced in a finished form even if the films no longer exist. It is estimated that 30,000 pages would cover the major newsreel companies. These pages could be photographed and printed in 30 offset volumes or in some microform although the offset would be preferable. This work could be contracted to a university, or it could be assigned to the American Film Institute as part of its multivolume catalog series.

#### STEPS

What the National Archives might do if a special appropriation becomes available for newsreel preservation:

1. Accelerate the preparation and conversion of nitrate newsreel film already in its custody in order to have all the work completed within ten years.
2. Negotiate agreements or deeds of gift with newsreel owners providing for: the copying of nitrate film on to safety film on a cost basis; the protection of commercial rights for a specified number of years, if so desired; and access by nonprofit educational organizations for classroom use. NARS would place purchase orders with these

companies for the copying of chronological segments of newsreels. NARS would also coordinate the selection of outtakes if the appropriation provided staff to carry out the appraisal work that would be needed as part of a selection process.

3. Provide storage space for safety film copies, make video tape reference copies, and otherwise maintain and service the newsreel holdings.

NARS cannot provide storage maintenance, preparation/inspection, and conversion for major increases of nitrate newsreel film. The conversion work must be completed beforehand so that only the new copies are accessioned by NARS.

#### OTHER RECOMMENDATIONS

Recommendations for non-NARS archives:

1. If NARS is unable (which it surely is at the present time) to contract for the copying of newsreels still in private hands, other archives and libraries may wish to acquire chronological segments of newsreels by negotiating directly with newsreel owners.
2. If chronological segments do not relate to the primary area of interests or acquisitions policy of these institutions, selecting and copying should be made according to subject matter; for example, newsreel items relating to regional or local topics of historical importance. This would constitute a bilateral agreement between the recipient institution and the newsreel owner.
3. Other institutions should continue to offer to NARS any fugitive single issues of intact newsreels that might be acquired from a collector, theater owner, or other individual.

Estimated Laboratory Costs for a National Newsreel Preservation Program (Note: Limited to film requiring duplication).

First Option: Convert all nitrate film and make video reference copies of converted copies and of safety-era negatives:

170,000,000'	@ .16	\$27,200,000
Videocassettes	@ \$1 per min.	2,400,000
38,000 cu. ft. storage		
		<hr/> \$29,600,000

Second Option: A. Convert nitrate edited stories and make video reference copies:

13,500,000'	@ .16	\$2,160,000
Videocassettes	@ \$1 per min.	150,000
3,000 cu. ft. storage		
		<hr/> \$2,310,000

B. Convert 40% of the nitrate outtakes:

68,000,000'	@ .16	\$10,880,000
Videocassettes	@ \$1 per min.	760,000
14,000 cu. ft. storage		
		<hr/> \$11,640,000

C. Make video copies of all safety-era negatives (assuming negatives are donated):

35,000,000'		
Videocassettes	@ \$1 per min.	\$ 390,000
7,300 cu. ft. storage		

Third Option: A. Copy safety-era edited stories: (assuming safety negatives are not donated).

3,500,000'	@ .16	\$ 560,000
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Videocassettes	@ \$3 per min.	39,000
1,000 cu. ft. storage		<u>\$599,000</u>

B. Copy 40% of safety-era outtakes and  
make video reference copies:

(Note: Limited to Fox, Hearst, Grinberg  
since Universal has donated its  
negatives).

13,000,000 <sup>1</sup>	@ .16	\$2,080,000
Videocassettes	@ \$1 per min.	145,000
3,000 cu. ft. storage		<u>\$2,225,000</u>

APPENDIX 9.—RESPONSES TO SUBCOMMITTEE QUESTIONS BY NATIONAL  
ARCHIVES AND RECORDS SERVICE

General Services Administration      National Archives and Records Service  
Washington, DC 20408

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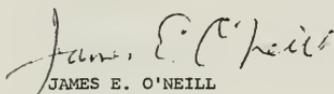
SEP 4 1979

Honorable Richardson Preyer  
Chairman, Government Information  
and Individual Rights Subcommittee  
Committee on Government Operations  
House of Representatives  
Washington, DC 20515

Dear Mr. Preyer:

Attached are responses to Questions 1 through 35 requested in your  
letter of July 26, 1979. The remaining responses will be forwarded  
on Tuesday, September 4.

Sincerely,

  
JAMES E. O'NEILL  
Acting Archivist  
of the United States

Attachment

1. In October 1974, according to GAO inspections, three of eighteen records storage facilities met fire standards. How many are in compliance now?

All of the 13 regional records center and the two national centers now are in compliance. The Neosho facility and the Boston FARC annex have been closed since the October 1974 GAO inspections.

2. Who performs these inspections and how often are facilities inspected to determine if they comply with the standards?

PBS P 5900.2, Chap. 4, Part 3, paragraph 9, requires an accident and fire prevention survey to be conducted a minimum of every 4 years. These surveys are conducted by the regional PBS Accident and Fire Prevention Branch. Copies of the report, on GSA Form 2030, are submitted to the appropriate Center Director, Library Director, or NARS Technical Services Division, and appropriate PBS officials.

For Federal Records Centers, and Federal Archives and Records Centers the following additional inspections are applicable:

a. A quarterly Warehouse Fire Protection Inspection Report completed by the local buildings manager, is submitted on GSA form 1512 in accordance with PBS P 5920.3, Chap. 2-4a(1).

b. At least once every 2 years an inspection of the records center facilities is completed by the fire and safety expert from the staff of the Office of Federal Records Centers. A written report of the findings is submitted to the appropriate NARS Regional Commissioner, the Archivist, and the appropriate GSA Regional Administrator.

c. Daily inspections are made by the Center Director or his designated representative at the close of each day as required by MAP P 1864.1A, Chap. 2-725(8).

d. Additionally, each NARS facility has a self-protection plan as required by FPMR 101-20.504.2.

3. Are inspections made at facilities that store archival materials, rather than records?

Archives housed in Federal Archives and Records Centers for NNRC (which houses the General Archives Division), the Boston FARC (which houses the NLE materials) and the Los Angeles FARC (which houses some Nixon materials) and the Archives Building, same inspections described in 2 above are made.

4. The Administrative Services Division also has responsibility for inspecting buildings. Does it inspect for fire hazards?

2

Technically, NAS does not have the authority or the responsibility for fire safety surveys. Neither is the Division staffed for such surveys or inspections. The Division does, however, receive reports from the NARS Health and Safety Committee and employees working in the stacks and takes action on fire safety reported deficiencies as follows:

a. Those that are NARS responsibilities are corrected by the office concerned and/or the Administrative Services Division.

b. Those that are the responsibility of the Public Buildings Service are reported to the Buildings Manager and/or Accident and Fire Prevention Branch.

5. How often does the Division inspect the main building? Has it uncovered critical deficiencies?

The Division conducts quarterly inspections of the main Archives Building jointly with the Executive Director. The areas inspected are primarily corridors, lobbies, stairwells, and rest rooms; to determine whether the areas are clear of debris, lights are functioning properly, plumbing is working, and security to the stacks is being maintained. Except in certain instances (suspected problem) these inspections do not cover office space.

6. What was done to improve conditions at Lansburgh's?

A. The following projects were accomplished prior to occupancy:

1. Installation of smoke detectors.
2. Installation of security system.
3. Fumigation of archives area.
4. Installation of fire wall partitions.
5. Installation of security cage to segregate archives area.
6. Partition of walls, ceilings, and floors, including the main entrance.

B. The following work was accomplished after Archives took occupancy of the Lansburgh's building:

1. Installed telephones at main entrance and 4th floor for security use.
2. Installed safety treads on entrance steps.
3. Installed intrusion alarm contacts on doors in entrance to parts of Lansburgh's building that were not occupied by Archives.
4. Installed carpet runner in main entrance corridor because of slippery conditions when wet.
5. Changed light fixtures in main entrance corridor from incandescent to fluorescent to provide better lights in corridor.
6. Installed additional expanded metal in rear stairwell at 4th floor for better security.
7. Installed carpet in 3th floor elevator lobby and patched up holes in walls.
8. Installed 1' x 1' acoustical tile on wall of 3th floor work area to deaden sound from rest room.

3

9. Installed new floor model drinking fountain for employees and researchers use.

10. Installed drop ceiling, tiled floors, and installed fluorescent lights in rest rooms on 4th, 5th, and 6th floors.

11. Replaced locks three times for better security.

12. Met with PBS Buildings Manager representatives and got a cost estimate to have 6th floor repaired, and sent reimbursable work authorization to PBS for the work.

13. Designed and had PBS Cabinet Shop construct shelving for use in research room on 6th floor.

14. Installed additional partition with locking doors on 4th, 5th, 6th, and 7th floors to secure rear stairwells from uncontrolled freight elevators.

15. Requested PBS to provide HVAC 24 hours a day, 7 days a week.

16. Request PBS to have the lessor replace buckled flooring on the 6th floor.

17. Had PBS make a floor load and column support survey on the 6th floor.

7. In a 1978 letter from the Administrative Services Division to the Public Building Service manager with responsibility for Lansburgh's, it was stated that a fire in any part of the building would seriously endanger the Archives records. Did this give you reason to think of moving out?

Not at the time because the deficiencies cited appeared correctable with minimum expenditure of funds.

8. How much use has the public made of the Universal collection? Is the estimate of how much this has cost or benefited the Archives and its Trust Fund?

The Universal Newsreel Collection is the most heavily used film collection in the National Archives. During FY 78 approximately 70 percent of the motion picture reproduction orders processed were for footage from the Universal Collection. This amounted to about 1.2 million feet of film and produced a net income to the Trust Fund of \$39,000. The NARS fee schedule is designed to include all costs associated with reproducing NARS holdings so that NARS incurs no cost when reproductions are furnished to the public. Revenue from fees charged to make copies requested by the public is used to pay salaries, supplies, and associated costs incurred by the Trust Fund.

Researchers are not charged for viewing archival films in the National Archives Building. Generally, researchers are allowed to set up films on viewers made available in the motion picture research room. In addition to the cost of viewing equipment, NARS' appropriation bears the labor costs involved in locating and making the film available to researchers and having a staff member supervise the research room.

9. How much does the March of Time collection's subject matter overlap with the Universal collection?

The Universal Newsreel Collection dates from 1929-1967. The 1929 to 1951 period is on nitrate film. The March of Time Collection spans the period 1935 through 1951. While some of the same subjects may be included in both collections, the manner of presentation in the edited releases differs significantly.

The newsreels contain brief news reports on major happenings and public issues, usually six to ten stories running a total of about 11 minutes. The March of Time releases generally run 20 minutes and focus on a specific subject providing in-depth coverage,

4

commentary, and analysis. The edited releases in both collections will be retained in their entirety.

On the basis of current appraisal work, 47 percent of the March of Time outtakes are designated for disposal and 41 percent of the Universal outtakes will be disposed of and not converted. Attached is a list of the criteria used to determine whether outtake footage in the two collections is to be retained permanently or destroyed (Attachment I).

10. Can some of the March of Time footage be discarded as a result?

Disposal of the March of Time outtake footage will be accomplished in line with the criteria mention in response to question 9. The loss of Universal outtakes in the December 7 fire necessitates the retention of some March of Time outtakes which would have been eliminated as duplicative if the Universal footage had not been lost.

11. Since the Lansburgh's building is not designed to store film, where does the Archives plan to store future acquisitions?

The National Archives is in the process of acquiring a facility located on Pickett Street in Alexandria, Virginia. This facility will house black and white and color preprint material already in the National Archives as well as that which will be accessioned in the future. The facility will also accept for storage color preprint material for Federal agency films that are still in the custody of the creating organizations. Prints and other viewing copies (video reference copies) will be housed in the National Archives Building in order to provide reference service on our holdings.

12. Does the Archives contemplate any large acquisitions?

No large accessions of non-government material are presently anticipated. Gift offers of nitrate film would not be accepted unless resources were available for immediate conversion.

Based upon information obtained in the Audiovisual Archives Division's survey and evaluation work in Federal agencies and the volume of audiovisual records currently stored in Federal Records Centers, between 500 and 1,000 cubic feet of motion picture film will be eligible for accessioning each year over the next 10 years.

With regard to the future acquisition of any aerial film, Federal agencies have custody of a considerable volume of old aerial film, some of which will be accessioned by the National Archives. In the Federal Center in Suitland, the Defence Intelligence Agency is currently storing 110,000 cubic feet of aerial film (450,000 rolls) dating from 1941 to the present. Other agencies storing large quantities of film include the Department of Agriculture, Department of Interior, NASA, and National Ocean Survey. All of this film is on safety base film but some of the safety base film (diacetate) from the 1940's is shrinking.

13. Both private and government studies of the art of preserving nitrate film recommend humidity control and ventilation of nitrate gases. Why have the vaults at Suitland gone so long without either?

With normal leakage from containers and the low temperature (55°F) of storage there is no published evidence that nitrate film is considered in danger of ignition under any humidity condition. This is not so at temperatures above 105°F, and humidity levels

above 70 percent. As an extra precaution, NARS requested that humidity control be included as part of the renovations being performed on Buildings A and C when the second 1978 fire occurred (see Attachment 2).

The semiannual inspection of the films and the opening of the cans provides further gas dispersion or aeration.

14. How does the Archives monitor humidity at the Suitland vault buildings?

There is no procedure for monitoring humidity. Temperatures, however, are monitored daily.

15. How well have PBS improvements in the main building work to control temperature and humidity levels?

The improvements to HVAC in the Archives building have helped somewhat but there are still major problems that have not been corrected. In several records storage areas we cannot maintain a "constant" temperature or humidity reading for more than a day or two. We understand that additional improvements to "fine-tune" the Archives building HVAC system will be undertaken by PBS in FY 1980.

16. What success is the Archives having with General Records Schedule 21, which requires agencies to submit films that are both pertinent and in good enough condition to copy?

Since General Records Schedule 21 (now mandatory) requires agencies to transfer on a regular basis and in a more timely manner permanent records with all the necessary elements for preservation, duplication, and reference, the physical condition of the permanent material at the time of accessioning should be much better than it has been in the past. We anticipate that by monitoring compliance with these regulations our preservation needs for audiovisual records can, after a reasonable period, be limited to relatively small increases in space, supplies, and equipment. Right now, however, it's too early to state with any certainty what the impact the General Schedule will have on our preservation needs.

As part of a planned review of this schedule, NARS solicited comments from Federal agencies on their use of GRS 21 and the adequacy of its guidelines for determining whether the audiovisual records they produce and acquire are worthy of permanent retention or eligible for disposal. For the most part agencies responded favorably. The majority indicated that GRS 21 criteria were satisfactory for differentiating between records worthy of retention and those which could be destroyed when no longer needed for current business. Several agencies suggested revisions to specific sections of the schedule. These are being evaluated along with revisions recommended by members of the Audiovisual Archives Division staff. Appropriate revisions will be incorporated in the GRS once this evaluation has been completed.

More than 1,900 cubic feet of agency motion picture film has been destroyed under the authority of GRS 21 since it was issued in January 1977. This material was disposed of through the Stock Film Library Branch (NNVS) evaluation program and the Audiovisual Archives Division's continuing appraisal of the extensive holdings of the International Communication Agency, formerly USIA.

17. How well is the National Audio-Visual Center working to assure that government agencies do not duplicate or produce unnecessary films? What is it doing to avoid duplication?

The National Audiovisual Center (NAC) has implemented a procedure based on OMB Circular A-114 to provide a service to all Federal agencies aimed at reducing duplication of production effort. Prior to the production of any audiovisual product (film, videotape, slide/tape, etc.), all agencies must perform a mandatory title check through NAC to ensure that similar products have not been produced or that they are not currently in production. This procedure is prescribed by GSA, FPMR (41 CFR 101.11.1304) and is accomplished by using Standard Form 282.

The form requires agencies to identify the intended subject, specific or unique elements of the product, and the intended purpose. When received, NAC performs a search of its comprehensive data bank composed of audiovisual products produced by Federal agencies. The data bank has been compiled under voluntary compliance since 1969 but, with the issuance of A-114, there is now a mandatory requirement that agencies report all audiovisuals produced using a Federal Audiovisual Production Report (Standard Form 202) as prescribed by FPMR 101.11.1304.

If the data bank search reveals similar products, specific information about those titles is returned to the requesting agency. The agency is then required to review the existing products and, whenever possible, utilize them rather than produce new ones. Should an agency find the existing products inadequate for their program needs, they must submit to NAC a written justification along with the Federal Audiovisual Production Report, such justification becoming part of the production record.

NAC provides the management services and mechanism to reduce duplication, but individual agencies must use the system and actively review existing products to make the system work. NAC cannot, under the present policy of A-114 or existing agency prerogatives, veto the production of an agency audiovisual product. NAC has taken an active role to create a workable procedure designed to reduce duplication and will evaluate the results of the program as soon as sufficient data exists.

18. Since the Pentagon is such a large generator of films, does the Archives have some particular relationship with the Defense Department to guard against duplication by different branches of the military?

The Department of Defense (DOD) is required under A-114 to reduce duplication of production effort and is subject to the same constraints as other agencies. However, because of the great number of audiovisual products produced annually by DOD, a special procedure has been initiated to reduce the flow of paperwork and use of forms between DOD and NAC. The DOD and NAC have an interagency agreement whereby they utilize the same computer system for maintaining their respective audiovisual data banks. Since NAC is directly on-line with the DOD system, this ensures full data base searches when title checks are performed for other civilian agencies. Likewise, DOD is on-line to NAC's data bank and when DOD performs a title check (each individual service performs its own), the search includes all products produced by the civilian agencies. A computer program is currently being developed to provide the statistical data to NAC on how many title checks are requested by DOD and how many of those checks provide similar products for review by the individual services. Written justifications are forwarded to NAC by DOD components when existing products fail to meet DOD requirements. A great deal of coordination to develop common data elements for the NAC/DOD system prior to implementation has led to a compatible search system suitable to meet the needs of both NAC and DOD.

19. What is the Archives doing to improve storage conditions at federal film libraries

and to improve inspection?

Since 1974 the NARS' Audiovisual Archives Division (NNV) has pursued a systematic program to assist Federal agencies in establishing and/or upgrading management programs for audiovisual records. Through the records management evaluations conducted in conjunction with the Office of Records and Information Management and agency survey activities, the Audiovisual Archives Division has identified recordkeeping practices and storage conditions that do not meet the Federal Property Management Regulations (FPMR) for audiovisual records management (see Attachment 3). NARS issued these regulations in 1976. Recommendations to improve any deficiencies are submitted to the agencies concerned.

In addition, space for the cold storage of agency color motion picture preprint material will be available at the facility NARS is planning to lease on south Pickett Street in Alexandria, Virginia. This facility will enable NARS to store the original materials for valuable current and archival film productions in an optimum storage environment, and is in line with GAO's recommendations in its report of 1978, "Valuable Government-owned Motion Picture Films are Rapidly Deteriorating."

20. How did nitrate film go undetected until recently in a building at the Washington Federal Records Center? Has NARS looked for and found nitrate film at other federal records centers?

The recent discovery of nitrate film at the Washington National Records Center involved motion picture film generated by the Department of the Army. The accessions (dating from 1968-69) consisted of 3864 cubic and approximately 38,640 reels. Upon receipt, in accordance with established center procedures a small percentage of the boxes (approximately 10 percent) were checked to verify that the shipment was safety film. All reels examined were verified as safety film. In March 1979, 1784 boxes (approximately 17,840 reels) were requested by and returned to the Army Motion Picture Depository in Tobyhanna, Pennsylvania. During a reel-by-reel, frame-by-frame inspection they found both entire reels of nitrate film and partial segments of nitrate film spliced to safety film. When WNRC was notified that this nitrate film had been found, the balance of the collection was immediately returned to Tobyhanna for inspection. We understand that approximately 1 percent of the shipment contained either complete roles of nitrate film or segments of nitrate film.

Subsequent to this discovery, all records centers, including WNRC, were directed to make a box-by-box (including, if necessary, reel-by-reel) examination of any accessions that dated prior to 1954 that might contain nitrate film of any type. This examination has been completed, including a second check of certain records groups when nitrate film was found by some centers in these records groups. It should be pointed out, however, that much of the nitrate film that has been found in our reviews has been still negatives interspersed with paper records. Since the agency paperwork for such accessions does not mention film, it would be an impossibility to examine each and every box of records in our records centers to ensure that no still nitrate film negatives are present.

In addition, procedures for handling accessions suspected of containing nitrate film have been issued to all centers. A copy of these procedures is attached (see Attachment 4).

21. What particular problems is the Archives having with the growing amount of videotape that it acquires?

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At present there are no problems with the videotape recordings that have been accessioned. NARS holds 6,600 such recordings.

22. The GAO report says that the videotape can deteriorate in less than 20 years. Is the Archives or anyone else conducting research to assure a longer life expectancy than this?

NARS recognizes that video tape is not a permanent storage medium. When it first began to accession videotape, NARS had DOD prepare 16mm black and white film preservation copies of the recordings. In 1977 DOD phased out its equipment for making black and white copies from video, and NARS decided that the cost of making color film was too high. It was determined that preservation of video would have to await technological developments that were both effective and economically feasible.

Over the past 2 years NARS has requested assistance from the National Bureau of Standards and other organizations in solving the problems of video preservation. We are also considering the establishment of a Preservation Advisory Group to deal with this and other preservation problem areas.

Currently there is no solution to the problem of video preservation. A major research effort is essential, but NARS does not possess the resources to undertake or fund such research.

23. Has the proliferation of video studios throughout the government given the Archives more tape than it can handle?

No. NARS holds approximately 600 video records produced by Federal agencies. The kinds of information most frequently recorded in a video format usually do not warrant permanent retention by the Government.

24. Why did the Archives feel it needed a license from the three major networks to maintain their newscasts? Should not the government be able to copy what is in the public domain and make use of it?

CBS began copyrighting its news broadcasts in February 1975; NBC and ABC began copyrighting their broadcasts in 1976. Network news broadcasts are not in the public domain. The royalty-free licenses granted by ABC and NBC to NARS are a continuation of the cooperative relationship that the networks have had with NARS over the years. They permit NARS to copy evening and weekend news broadcasts and news specials off the air and make them available for research.

Under a NARS-CBS agreement, the network deposits copies of its morning, noon, and evening hard news broadcasts and selected news specials.

The TV news broadcasts are available for research at NARS facilities nationwide. The CBS agreement permits NARS to loan copies of their programs, through interlibrary loan, to libraries throughout the country.

25. Is the building that the Archives plans to lease on Pitt Street in Alexandria, Virginia, going to be used exclusively for storing color film? Has NARS conducted any study of what its storage needs will be for both color film and black and white?

The Pickett Street facility will be used to store black and white motion picture preprint,

and, in a refrigerated vault, both color motion picture preprint for accessioned films and current films of Federal agencies as well as original color still picture records accessioned by the National Archives. On the basis of information obtained through records management evaluations and agency surveys, the Audiovisual Archives Division prepared a 10-year plan for the preservation of audiovisual records in 1977. The storage requirements for archival motion picture preprint and still photography through 1987 will be satisfied at the Pickett Street facility, and sufficient space will likewise be available to house agency color preprint materials for current motion picture productions.

In addition to the film storage facilities and associated personnel, present plans call for locating NARS' Center for Cartographic and Architectural Archives, Records Declassification Division, and Nixon Presidential Materials Project Staff at the Pickett Street facility.

26. In testimony before the subcommittee, Acting PBS Commissioner Dennis Keilman discussed the need for one large building for storing film. Has the Archives discussed such an idea with PBS, and if so, in what detail?

NARS has not had any discussions with PBS concerning a single large building for storing film. Although we have not carefully studied such a proposal, we have some doubts about the desirability of a single storage building.

27. Is the final nitrate film report by the Naval Ordnance Laboratory at Indian Head, Maryland, ready? If so, please send a copy to the subcommittee.

The final report just arrived. A copy is attached.

28. When did the Archives abandon the practice of keeping original copies of nitrate film after safety copies were made?

The motion picture film practice was changed on August 15, 1978, and nitrate originals in good condition were retained as long as possible before this policy change. They were used to furnish reproductions for a fee, thereby safeguarding our safety preservation masters from over printing. Also, the nitrate originals yield better photographic reproductions than the second-generation safety copies. Film archives as a rule do not destroy their nitrate after copying but hold them in order to be able to make the highest quality reproductions.

With regard to aerial film the decision to destroy the nitrate original was made in the 1960's, and some rolls were destroyed under this policy. Later it was discovered that the safety copy was not satisfactory for reproduction purposes and the originals are being retained pending refilming.

29. What percentage of the Universal collection was release? Outtake?

Universal Newsreel Collection

Releases: 4,116 reels (9 percent)

Outtakes: 39,375 (91 percent)

30. How much of the supplemental request would have gone toward converting the 70 millimeter aerial film? Without the funds, how long will it take to convert it? How much did the first work cost?

(a) \$937,000 would have been used to refilm what is now on 70mm film and for converting the remaining 2.2 million nitrate images to 105mm film.

(b) It would vary from a minimum of 4 to 5 years to a maximum of 9 or 10 depending upon (a) the number of 105mm cameras utilized, (b) the number of shifts employed and (c) the amount of work that can be performed for NARS by the Defense Intelligence Agency.

(c) Records of expenditures for converting these records show that approximately \$177,000 was expended from 1969 to 1976. There are no records showing costs for this particular preservation program during the years 1964-1968. We estimate an additional \$60,000 to \$70,000 was spent during these 5 years.

31. How much has NARS received from private donors to convert nitrate film? Who were the donors and how big were their collections?

The Ford Film Collection consisting of 1.5 million feet of nitrate film was donated to the National Archives by Henry Ford II in 1963. With the gift of the film collection the Ford Motor Company also donated \$200,000 to the National Archives Trust Fund for the purpose of appraising, cataloging, and copying the nitrate onto safety base film.

32. Based on the figures cited in the supplemental request, is it reasonable to assume that before the August 1977, vault building fire, the Archives was spending about a quarter of a million dollars annually to convert nitrate film? (Before the fire, conversion was proceeding at a rate of about 3 million a year, costing an estimated \$790,000, including funds for 300,000 aerial photo frames.)

The parenthetical statement shown above applies only to the FY 1979 program for nitrate conversion. Reprogrammed funds from FY 1978 were utilized to finance this accelerated conversion program. Prior to FY 1977 we have records delineating nitrate movie conversion only since 1974. The nitrate motion picture footage converted each year averaged 400,000 feet per year or approximately \$100,000.

33. How much of the work is now being done on contract?

All present aerial conversion is now being done on contract. Aerial indexes (Medcom) \$45,000 obligated; 70mm enhanced copies (EPA) \$45,000 obligated; 1:1 copies (DIA) \$52,169 obligated.

(a) Aerial film:

All present aerial conversion work is being done on contract or under interagency agreements. These contracts and interagency agreements total approximately \$142,000.

(b) No nitrate motion picture film is being done on contract. NARS has an agreement with Bono Laboratories that would allow us to send them any footage that cannot be accommodated in the NARS preservation laboratory. Within current funding, however, NARS has been able to convert the film as quickly as it is prepared.

34. What services are suffering because of the crash conversion program?

The crash conversion program has made it necessary to eliminate, for the time being, customer reproductions of Universal nitrate era-footage. This is the most heavily used

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film collection in the National Archives, and accounted for approximately 70 percent of the motion picture reproduction orders processed during FY 1978. Also, in order to direct all of its capacity to converting the remaining nitrate, the NARS laboratories are sending all customer orders to commercial labs. This results in increased handling and delays in processing client orders because commercial labs do not always have priorities that coincide with our own. No preservation work has suffered as a result of the crash program as the lab has been able to accommodate the increased footage through use of an expanded work day.

35. Does the new Archives policy of charging users 30 percent above the cost of duplicating film pertain to just nitrate footage?

No, the surcharge which became effective on October 1, 1978, is applied to all public motion picture reproduction orders.

## Guidelines for Evaluating Universal Newsreel

Outtakes 1929-51, and the March of Time Stock Film Library, 1935-51

General categories to be converted:

1. Significant activities of the U.S. Government and its officials, including all Presidential and vice-presidential activities whether official, partisan, or personal; Senators and Representatives; Supreme Court; cabinet-level officials and or department heads; and other high-ranking officers.
2. Events and topics or other phenomena with national implications, e.g., labor strikes and union activity or topics relating to or illustrative of the effects of the Great Depression. Scenes showing living and working conditions in all aspects of American society.
3. International news events and topics, especially those involving U.S. foreign relations; also wars, conferences, foreign heads of state (royalty, presidents, prime ministers, etc.) and conditions in foreign countries.
4. Prominent, well known, famous or infamous personalities in all fields of endeavor, e.g., arts, culture, entertainment, politics, sports, technology, etc. Especially desirable is sound film with synchronized speech. Early sound interviews are also important.
5. Technological change and advancement, e.g., in architecture, conveyances, medicine, transportation, etc.
6. Scientific achievement, including discoveries, announcements, experiments, and demonstrations.
7. Footage relating to ethnic and racial minorities, such as Polish-American, Italian-Americans, Afro-Americans, and Hispanics; footage relating to immigrant groups; footage relating to women and to the changing perception of women in social and vocational roles.
8. Sports footage should be limited to Olympic Games and professional championship games or matches and professional all-star games.
9. Cultural activities, including the performing arts and communication arts (radio, television, and motion pictures).

Some specific categories to be converted:

1. Outtakes relating to "landmark" newsreel stories as mentioned in Fielding's book The American Newsreel 1911-67. (Required reading)
2. Outtakes relating to MOT issues of particular editorial significance as mentioned in Fielding's other book The March of Time, 1935-1951. (Required reading)
3. Significant recreated events involving the participants.
4. Experimental reels (MOT).

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5. Camera footage by Richard de Rochement, Julien Bryan, and Eric Saloman.
6. Completed productions identified as "cut negative." (This is not the same as "negative cuts," which are in fact unedited outtakes.)
7. Controversial or censored films.

Categories to be avoided:

1. Sports--amateur and college sports and non-championship professional games or matches.
2. Human interest stories such as "cute kids" and scooter races, unless they have unusual anthropological, sociological, or cultural value.
3. Disasters, exclusive of the "Dust Bowl" during the 1930's and earthquakes.
4. Local, regional, or Canadian "local" stories unless there are broader implications.
5. Weather stories such as hurricanes and snow storms.
6. Beauty and fashion shows.
7. Ship launchings and other ceremonies.
8. Obvious stunts and "oddities."
9. World War II official film, provided there is adequate coverage in other record groups.
10. Foreign-language versions.
11. Staged, dramatized events with actors.
12. Animation outtakes.

Survey Report, Airconditioning - Safety  
Film Vaults A, B, and C  
Suitland Reservation, Suitland, Maryland  
GS-008-01321  
May 7, 1973

On April 26, 1973, an airconditioning survey was made for Vault Buildings A, B, and C at the Suitland Field Office, Suitland, Maryland. The survey was performed by the Design Branch of the Office of Operating Programs, of the General Services Administration.

#### BACKGROUND

The three vault buildings are now occupied by two agencies: buildings A and C are under the National Archives, while building B is operated by the Library of Congress. The vaults within these buildings are now being used to store nitrate base film. This film is extremely flammable and must be kept under special conditions in order to minimize decomposition and resulting combustible gases. The film stored in these vaults is considered of historic value and is in the process of conversion to "safety film", but until that conversion, must be preserved with a minimum of decomposition.

The three buildings are identical one story cinder block construction, each measuring 40 by 100 feet, each housing a processing room, an office, and 27 individual film storage vaults. The buildings were constructed just after World War II. The vaults themselves are walk-in type with dimensions 5 feet wide, 15 feet long and 8 feet high.

This survey was prompted by a September 22, 1971, memorandum prepared by the Contract and Procurement Office of the Library of Congress. The memorandum prepared by Mr. Stephen Bush of said office, described the following deficiencies with the mechanical systems of Vault Building B. (These conditions were found to be accurate for Vault Buildings A and C as well, except item No. 4 since no rewind tables presently exist.)

1. Performance of vault airconditioning system inadequate to meet load requirements.
2. Ventilation of processing room work area not operable from November to April as exhaust fan is on same circuit as airconditioner which is now operated seasonally.
3. Seasonal operation of airconditioning system does not allow for unseasonably warm weather and fails to provide for "positive ventilation" of flammable film decomposition gases during shut-down.
4. Lack of humidity control in processing room could result in a fire hazard as static electricity resulting from high speed rewind table could result in ignition of nitrate film.

DESIGN CRITERIA

The design parameters set forth here, are those established in the referenced memorandum, and revised through conversations with Mr. Stephen Bush, GSA Fire Protection Officials, and Mr. William Murphy, Film Archivist of the National Archives.

Vault room temperature: 42 - 50°F DB  
 Vault room humidity: 40 - 60% RH  
 Processing room humidity: 50 - 60% RH  
 Ventilation capture velocity: 100 fpm  
 for processing room work area  
 Provision for decomposition venting should be made

FINDINGS

The present vault airconditioning system comprises 27 individual fan-evaporator units with a common compressor and condenser. This system is estimated to be 15 years old.

The fan-evaporators, DX units, were made by Silco Products Incorporated. Indications are that this company no longer exists, or has been incorporated into another organization. Considering this condition, it is difficult to establish the operating limits of the coils. However, they are probably not suited for the design parameters as stated above. In order to maintain the 42-50°F DB vault temperature, the evaporator coils would be below 32°F DB, ie. freezing. Hence any condensation resulting from the cooling process would result in a "frosting" of the coil, preventing it establishing design room temperature. Presently, no defrost equipment exists for these coils.

The existing compressor, which is common to all 27 DX units, is a Chrysler Air Temp Radial. The life expectancy on these compressors is judged to be 15 to 20 years. Last season, vault building A had its compressor completely replaced. Buildings B and C are still functioning on the original compressors. The existing compressors are designed to provide 15 tons of cooling. The calculated heat load required for each existing vault building is 16 tons based on design criteria.

With these existing components, this system can provide no humidity control: design criteria calls controlling the relative humidity between 40 - 60%.

Although year round operation of the airconditioning system can be achieved through a system modification for low ambient operation, this is recommended only if replacement of the entire system is not planned or delayed into the fall of this year. This can be done for a relatively small cost and could be handled through the GSA Buildings Manager's office.

Vault construction is of major concern in meeting temperature and humidity design criteria and reducing heat load. Present vault construction makes it practically impossible to control humidity. With no vapor barrier on the exterior of the building, the block construction will allow moisture to enter the vaults. Lack of thermal insulation on masonry walls provides needless heat gain. Lack of insulation of vault doors and corridor walls produces additional heat load, and causes condensation to form in the hall to the extent that the floor must be mopped.

The existing explosion vents in each vault, are properly sized, but represent a principle source of heat gain. In fact, the infiltration around the blow-out section makes humidity control impractical.

By sealing these explosion vents, however, almost all air exchange would stop which would result in no decomposition gas removal. A cummulation of these gases represents an explosion hazard. Also, GSA Accident and Fire Protection Officials consider NFPA standards minimal in allowing the absence of decomposition venting if explosion vents exist.

Processing room ventilation is presently being handled by a 12 inch wall mounted exhaust fan, with an estimated capacity of 800 cfm. This fan is connected to the electric circuit which also operates the existing air-conditioning system and as such is subject to seasonal operation. This is unacceptable considering the toxic vapors and volatile nature of nitrate film. The use of laboratory type fume hoods, as recommended in the September 22, 1971, memorandum, is considered the most proper way of removing released gases. Because of the nature of nitrate film they would have to be rated "explosion proof," as would any electrically operated device in the room. With a capture velocity of 100 feet per minute at the hood intake, there would be nearly 800 cfm of air leaving the room for every hood in the room. For the three work stations in the processing room, this would require a make-up of 2400 cfm. Although this represents a considerable heat gain, a package airconditioner could handle this if conditioned make up air is required. However, the possibility of introducing unconditioned outside air directly into the hoods should also be considered.

Humidity control in the processing room, with an air exchange of 2400 cfm would be extremely difficult. NFPA recommends that rewind tables be placed in private rooms.

The office area or an unused vault would be suitable for relocating the rewind table. Although Vault Buildings A and C do not have motorized rewind tables, they may be installed at a later date.

Other means for reducing machine static electricity exist besides humidity control.

RECOMMENDATIONS

1. Replace existing vault airconditioning system with new individual vault system capable of meeting design parameters and winterized to operate year round. The existing system is too old and inadequate to meet design standards.
2. Install insulation on exterior and corridor walls to minimize heat gain.
3. Finish exterior of building with sealer to repel outside moisture.
4. Install insulation on vault doors, and provide weather stripping to minimize infiltration, condensation, and heat gain. Either this or replace them with standard refrigerator doors, at a much greater cost.
5. Replace existing insulation in explosion vents with plastic foam, thus providing an air tight seal, but not affecting vent's usefulness. This will minimize infiltration and reduce the vault's heat gain.
6. Provide decomposition vents with conditioned exchange air. This must be included in any vault upgrading project to minimize explosion hazard.
7. Install fume hoods over each work station in the processing room. This will assure local fume removal. Hoods must be "explosion proof."
8. Install small package airconditioning unit in building work area to provide necessary ventilation make-up if required, comfort cooling, and static control. It is recommended that the rewind table be removed from the processing room and placed in the office area, or an unused vault. Such locations are the only building areas where humidity control could be established if processing room ventilation is installed. If relocation of the rewind table is impractical, some other means for reducing machine static must be chosen in place of humidity control.

ESTIMATED COST

\$ 89,000 per vault building.

OCT 7 1975

Ronald N. Maviotti  
District Manager  
Baltimore/Richmond District  
General Services Administration

Dear Mr. Maviotti:

We have reviewed the copy of the "Scope of Work" for renovations to the film vaults in building A and C in Suitland, Maryland.

We want to make the following modifications before you proceed with the processing for design and construction.

1. The two office areas in film vault C are to be covered with 1 ft. x 1 ft. accoustical tile (tiles to match these those presently installed in film vault A).
2. In film vault C, install door and masonry wall in corridor between office area and film vault C (design to be same as film vault A).

Under 3. Mechanical

Item 3.B.1. The 54 existing film vaults should not only maintain a temperature at 50° but should also maintain a relative humidity of 50%.

Electrical (New Item)

Remove existing light fixtures in office areas of film vaults A and C and replace with 1 ft. x 4 ft. fluorescent light fixtures.

If you have any questions, please call Joe Schaefer at 963-6462.

Sincerely,



Lewis M. Robeson  
Chief, Services Branch  
National Archives and Records Service

## Chapter 101—Fed. Property Management Regulations

PART 101-11—RECORDS  
MANAGEMENTSubpart 101-11.13—Audiovisual Records  
Management

Source: 41 FR 14514, Apr. 4, 1974, unless otherwise noted.

## § 101-11.1300 Scope.

This subpart sets forth the policies and procedures for managing audiovisual records in the Federal Government.

## § 101-11.1301 Definitions.

(a) *Audiovisual records.* Audiovisual records include program and information motion pictures, still pictures, sound recordings, video recordings, and related documentation.

(b) *Audiovisual records management.* Audiovisual records management includes the management of audiovisual records and related records that document the creation and or acquisition of audiovisual records and that were created for or used in the retrieval of information about or from audiovisual records.

## § 101-11.1302 Objectives.

The objectives of audiovisual records management are to achieve the effective creation, maintenance, use, and disposition of audiovisual and related records by: identifying audiovisual and related records to be created and maintained; establishing standards for maintenance and disposition of audiovisual and related records; establishing standards for the physical security and preservation of audiovisual records; and reviewing audiovisual recordkeeping practices on a continuing basis to improve procedures.

## § 101-11.1303 Agency program responsibilities.

(a) Each Federal agency, in providing for effective controls over the creation of records, shall establish an appropriate program for the management of audiovisual records. This audiovisual records management program shall:

(1) Prescribe the types of records to be created and maintained so that audiovisual operations and their products are properly documented (Guidelines describing the appropriate types of records are found in § 101-11.411-7.);

(2) Issue standards for the maintenance and disposition of audiovisual and related records;

(3) Issue standards for the physical security and preservation of audiovisual records;

(4) Review agency audiovisual recordkeeping and exploit opportunities for improvement; and

(5) Develop and maintain creation cost data for agency audiovisual records.

(b) Each agency should establish agency standards for its audiovisual operations and issue appropriate instructions. These standards should include:

(1) Identifying the various generations of audiovisual records through classification and labeling;

(2) Filing, controlling, and scheduling audiovisual and related records;

(3) Preserving the physical integrity of audiovisual records through proper use and storage conditions; and

(4) Establishing contract specifications for contractor-produced audiovisual records which protect the Government's legal title and ultimate control over all audiovisual media and related documentation.

## Chapter 101—Fed. Property Management Regulations

PART 101-11—RECORDS  
MANAGEMENT

## § 101-11.411-7 Transfer of audiovisual records.

The following policies shall govern the transfer of audiovisual records to the National Archives:

(a) *Motion pictures.* The following copies shall be considered necessary for the preservation, duplication, and reference service of motion pictures:

(1) Agency-sponsored motion picture films for distribution (informational films):

(i) Original negative or color original plus separate optical sound track.

(ii) Intermediate master positive or duplicate negative plus optical sound track.

(iii) Sound projection print.

(2) Agency motion picture films made for internal use (program films):

(1) Original negative or color original plus sound.

(ii) Projection print.

(3) Agency acquired motion picture films: Two projection prints.

(4) Unedited outtakes and trims, the discards of film productions, may be considered for deposit in the National Archives if they are properly arranged, labeled, and described and show unstaged, unrehearsed events of historical interest or historically significant phenomena. The following elements should be included:

(i) Original negative or color original.

(ii) Work print.

(b) *Still pictures.* The following elements are necessary for the preservation, duplication, and reference service of each pictorial image:

(1) For black and white photographs, an original negative and a captioned print. If the original negative is nitrate or glass, a dupe negative is also needed.

(2) For color photographs, the original color transparency or color negative, a captioned print, and an internegative if one exists.

(3) For slide sets, the original and a reference set, and the related audio recording and script if one exists.

(4) For other pictorial records such as posters, original artwork, and filmstrips, the original and a reference print.

(c) *Sound recordings.* The following types of audio documents are necessary for the preservation, duplication, and reference service of sound recordings:

(1) For conventional, mass-produced, or multiple-copy disc recordings, the master tape, the matrix or stamper of each sound recording, and a disc pressing of each recording.

(2) For magnetic sound recordings usually on audiotape (reel-to-reel, cassette, or cartridge), the original tape or the earliest generation of the recording available, and a "dubbing" if one has been made.

(d) *Video recordings.* The original or the earliest generation of the video recording is necessary for the preservation, duplication, and reference service of this medium. A kinescope of the recording may be substituted.

(e) *Finding aids and production documentation.* The following records shall be transferred to the National Archives with the audiovisual records to which they pertain:

(1) Existing finding aids such as data sheets, shot lists, continuities, review sheets, catalogs, indexes, lists of captions, and other textual documentation that is necessary or helpful for the proper identification, retrieval, and use of the audiovisual records.

(2) Production case files or similar files that include copies of production contracts, scripts, transcripts, and appropriate documentation bearing on the origin, acquisition, release, and ownership of the production.

[41 FR 14516, Apr. 6, 1976]

1. Checking new accessions. All accessions containing motion picture or still negative film dated prior to 1954 (or x-rays prior to 1934) must be checked for nitrate film.

a. If the SF 135 states that the film is safety film a spot check should be made to confirm that it is safety film. This can be done by reading the margin of the film. It should give the brand name (Kodak or Dupont) and the designation "safetyfilm". If the technician can confirm by such an examination that the film is safety film, he should annotate, date, and initial the SF 135 with the results of the check. If such a confirmation cannot be made, the technician will inform the Unit Head who will ensure that the film is isolated for further testing.

b. If the SF 135 does not indicate that film is safety film, a more thorough check must be made. If the technician can verify it is safety film, he shall annotate, date, and initial the SF 135 as above. If not, he shall inform the Unit Head and the film must be isolated for testing.

2. Burn Test. This test shall be made on all questionable film. Using scissors, cut a piece from the edge of the film (approximately 1/8" x 1/2"). Hold the cut film with tweezers and ignite top edge of film. If the film is nitrate it will burn rapidly downward with a bright yellow flame until the entire sample is consumed. If it is safety film it will ignite only with difficulty and go out shortly after the match flame is removed. The safety film will melt and form a small rounded mass. It will not be consumed as the nitrate film is. If, after the test has been made, there still is doubt as to whether or not the film is nitrate, the Center Director should contact the Director, Center Operations Division for guidance on further testing

3. Checking accessions already in holdings. When film records in a center appear to have a nitrate base, they shall be isolated immediately for testing, and the procedures outlined in 1 and 2 above shall be followed.

4. Disposition of nitrate film.

a. All new accessions determined to have nitrate film shall be returned to the agency transferring the records. The agency should be informed that the records cannot be transferred to the center unless they are reproduced on safety film.

b. If nitrate film is discovered in a center's holdings the records shall be returned to the agency. The agency can decide whether to transfer to safety film or continue to hold the film.

c. If nitrate film is discovered in the Archives Branch holdings, it shall be isolated immediately and both NN and NC informed without delay. NN will make the determination about the disposition of the records.

*L. D. [unclear]* Pamphlet "NITRATE Film Testing For The NATIONAL Archives" returned to Committee because of duplicate printing per SCP [unclear]



General Services Administration      National Archives  
and  
Records Service Washington, DC 20408

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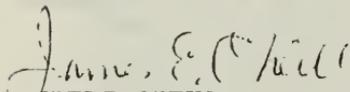
SEP 1 1979

Honorable Richardson Preyer  
Chairman, Government Information  
and Individual Rights Subcommittee  
Committee on Government Operations  
House of Representatives  
Washington, DC 20515

Dear Mr. Preyer:

Attached are responses to Questions 36 through 60 requested in your letter of July 26, 1979. If you have questions please feel free to call.

Sincerely,

  
JAMES E. O'NEILL  
Acting Archivist  
of the United States

Attachment

36. How much does the surcharge bring in to convert additional nitrate film and how much additional footage can be converted as a result?

As of June 1979 approximately \$30,000 of surcharge fees have been collected. The surcharge is used to pay for the preparation of duplicating copies (printing masters) that are used to make fee reproductions to satisfy researcher requests. This procedure ensures that neither the original nor the preservation copies of films are used, and possibly worn out, in the preparation of public reproduction orders. The surcharge is not used to finance the production of preservation copies or the conversion of nitrate film.

37. Did the policy change follow the first fire? Second fire?

The surcharge was adopted at the beginning of FY 1979.

38. Is there an estimate of how much of what was destroyed by fire could have been copied if the new policy had been in effect since the Archives acquired the Universal collection?

The surcharge revenues are used to pay for duplicating copies of films for which appropriate printing masters are not available. With regard to nitrate, when the policy of retaining the original nitrate after conversion was changed in August 1978, reproductions for fee orders could not be made from the original copies. Rather than print public orders from the newly made safety preservation copies, it was decided that a separate set of printing materials would be prepared from which public orders would be printed.

39. Has the Archives received the OSHA report on its film laboratory in the main building, and if so, does it now have a response to it?

NARS' Administrative Services Division recently received a copy of the draft report. NARS, however, is not preparing a response. The Public Buildings Service will prepare the response pending completion of reports by the Accident and Fire Prevention Branch of the Public Building Service's National Capitol Region based on that unit's recent survey of the same laboratory.

40. Is the film transported from Suitland to the laboratory in refrigerated trucks?

The transport of nitrate film is handled in a dual air-conditioned van.

41. During testimony, Mr. Spehr, assistant chief of the Library of Congress' Motion Picture, Broadcasting and Recorded Sound Division, testified that he discussed with James Moore, chief of the Audiovisual Archives Division, the possibility of using space in Building B to clear out vaults in Building A during installation of the air-conditioner system. What is Mr. Moore's recollection of this? Could NARS have put film in Building B during the work?

James W. Moore, Director of the Audiovisual Archives Division, NARS, discussed with Paul Spehr, the possibility of using nitrate vaults at Wright-Patterson Air Force Base at such time as the contract supervisor advised NARS that "hot work," the use of heat producing devices, would have to be done in the vaults. NARS planned to empty four vaults at a time when the "hot" work began. Exactly how this was to be done had not been finalized. Alternatives included utilization of other locations, overloading Suitland vaults, use of a refrigerated truck, etc. The latter two alternatives would have been preferable in terms of cost and of servicing the records. However, no plans were finalized because, as discussed in our testimony of June 19, 1979, this notice was not received by the appropriate NARS officials.

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It is our understanding that there were no empty vaults in Building B and that during the summer of 1978 when the entire sprinkler system in Building B was replaced, all vaults remained full and the contractor had to work around the film.

42. Mention is made of 27 million feet of nitrate film and the need to have it carefully examined. Did this mean examining it reel-by-reel upon acquisition or anytime later?

The reference in the 1978 study of preservation needs (p. III-1) was to the examination, repair, and splicing (set-up) required prior to being sent to the lab for duplication onto safety base film of those items selected for retention. These activities are performed by the nitrate vault staff at the time the film is prepared to be sent to the lab for conversion because it is more cost effective. Only those items deemed worthy of conversion are prepared in this manner. Since NARS had no experience with the conversion of outtakes, the estimate was based on the assumption that nearly all the collection would be retained.

43. Safety base film was scheduled for inspection only randomly and periodically. Is this still the practice?

Because our resources were so heavily committed to the nitrate film problem, safety film was not inspected on a regular basis. The Audiovisual Archives Division is presently interviewing to fill 5 film inspection positions. Persons hired in these positions will begin a reel-by-reel inspection of all safety film. The initial inspection will be conducted as quickly as possible, and it will be followed by periodic inspections of selected samples of safety film. (The American National Standards Institute recommends that such an inspection be conducted every 2 years.)

44. The Archives had begun to produce reference copies of film on to 3/4" video tape at less cost. How much has this practice been used and what have been the savings? What gets duplicated on to tape, and what onto film?

The cost to produce a 3/4" video reference copy of a 1 hour motion picture film is 1/8 the cost of a film reference copy of the same production. Over the past 3 years, nearly 500 video reference copies have been made resulting in a savings of \$327,000 when compared to the cost of preparing film copies. Video reference copies are being made for all accessioned films for which reference prints are not available. Preservation copies are still made in motion picture film. The drawback to video copies is that they are not recorded on a permanent medium and presumably the reference copies will need to be recopied at some point in the future.

45. New preservation methods were urged to reduce the cost of duplicating nitrate film to 8 cents a foot and safety-base film, to 3 cents a foot. What were these methods and what, such as research, was done to encourage them?

47. The report also suggested semi-automatic handling of originals and electrostatic, instead of silver-imaging, processing to reduce inspection and duplication costs from about \$2.15 to 20 cents an item. Was this done?

Current commercial electrostatic systems are adequate for typewritten, current documents but do not yet possess the capability of producing the resolution necessary for copying faded inks, etc. encountered in archival materials. To further develop this technology the U.S. Navy Naval Photographic Center sponsored research by Coulter Information Systems of Bedford, Massachusetts.

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This study, completed in 1977, was to determine the possibility of using electrostatic imaging for duplicating aerial photographic film.

The study involved construction of a laboratory prototype film duplicator and the analysis of films duplicated on it. The report concluded that this new technology is capable of producing high quality continuous tone imagery and that its very long shelf life and simple processing make it a viable alternative to silver halide emulsions.

The report also recommended further research and development to: (1) improve duplicating speed to 100 ft/min (comparable with NARS current film duplication speeds); (2) develop a toner specifically designed for this application; (3) refine other aspects of the process including improvements in consistency of quality.

The Navy has decided that it is unable to support further research at this time due to budget and priority considerations. NARS has therefore initiated talks with Coulter to develop the research strategy appropriate for producing applications of this technology for NARS use.

At this point it is not possible to present any specifics. Coulter has not yet confirmed that they will even formally offer to do the work. They have, however, expressed a definite interest in the project and the following general parameters appear realistic at this time.

The optimum funding level and program duration will be approximately \$100,000 per year for 3 to 5 years. The first application to emerge for NARS use will probably be in microfilm duplication; motion picture will follow. Camera applications for copying still pictures and microfilming textual records may be included in the first research program or might have to be part of a follow up program depending on problems encountered as the research proceeds.

46. The report urged research and development of a program to investigate such techniques as roll film for copying still pictures. Was this ever done?

The use of 35mm roll film has been implemented for making reference file (positive) copies of still pictures. The techniques for using roll film to make the master preservation copy is expected to emerge as a by-product of a current project to adapt 105mm roll film technology for copying 10" aerial nitrate film.

48. What were the technical reasons that the aerial photographs had to be recopied?

Poor resolution. The resolution is not detailed enough to provide adequate interpretation for all users of the film. The poor resolution apparently resulted from a combination of too large a reduction ratio combined with a wide variance in the quality of the original nitrate film. NARS expects that the 105mm film will give a resolution adequate to satisfy most film users. If this cannot be accomplished, we will convert the film on a 1 to 1 basis.

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49. How much did it cost to copy them the first time and how much will it cost the second time? Has the necessary equipment been installed to do the job?

(a) Original cost, see question 30c.

(b) Refilm cost. The refilming technique has not yet definitely been determined. We hope to convert onto 105mm film--the most cost-effective approach. If the resulting resolution is inadequate, however, NARS is committed to conversion on a 1 to 1 basis. The range in costs is as follows: If we refilm onto 105mm, the cost will be approximately 1 million. If we refilm at 1:1, the cost will be 1.8 million. Much of the difference in unit costs between the earlier 70mm filming and the current estimates can be attributed to greatly increased supply and labor costs since the 70mm filming was completed prior to 1970.

(c) Two 105mm cameras have been installed in NARS preservation laboratories. NARS does not have direct duplication equipment. Because of the expense of this latter equipment, direct duplication filming would have to be done by the DIA.

50. The report cites a problem of cost overruns in remodeling the laboratories and delays in doing the work, resulting in contracting out motion picture work very early in the 1970's. Who did this work? Was Bono a vendor at this time? When did it begin converting nitrate film, particularly the Universal collection?

See attachment 5 for listing of outside work.

As you can see in attachment 5, Washington Film Laboratory, Inc. (R72-0287, R73-0093, R74-0032, R76-0053, R76-0058, and R76-1417) did work for us. Washington Film Laboratory converted to Bono Film Laboratory in 1977 (R77-0123, R78-0029, TF-79-0067, TF79-0146, and TF79-0608. (Washington Film Lab. totaling \$89,200) Bono Film Lab. totaling \$375,000. Total \$464,200.

51. The Audiovisual Archives Division said that it was having trouble processing still pictures because its work could be delayed when the Office of Presidential Libraries or NNPP had a big work order in the laboratory. Is this still a problem?

No. This problem has been solved, and in general the standard photographic still picture preservation activities are progressing satisfactorily.

The one problem that remains is that the lab has not received the special equipment, similar to the type of scanner and 105mm film system that is now being adapted for use in copying 10" nitrate aerial film, which will enable it to prepare preservation copies of nitrate and glass negatives at a cost significantly below that of the standard photographic processes. Once the aerial project is underway, NAPP will be able to devote its attention to applying this approach to copying still picture negatives.

52. The Division was anxious to finish converting the aerial film to make space in vaults for nitrate motion pictures. How much space does the film take up?

The nitrate film referred to consisted of approximately 1,120 cubic feet of March of Time footage which could not be shelved in Building C because of the aerial film. It was necessary to store the motion picture film on the floors of the vaults. Currently, nitrate aerial film occupies 17½ vaults principally in Building C. Each vault contains 850-1,000 rolls or 170-200 cubic feet.

53. The Preservation Services Division was laying out its laboratories to separate NATT and NATM operations, and as a consequence, to increase motion-picture capacity by 250,000 to a total of 850,000 feet. Have the laboratories since been rearranged to increase capacity for the current crash program to convert nitrate film?

The laboratories have been rearranged, three additional people added and equipment reengineered, resulting in increasing NARS nitrate film conversion capacity from approximately 1.5 million feet in 1977 to approximately 4 million feet per year.

54. A problem had turned up in copying still pictures because safety film manufactured during the 1950's and perhaps the 1960's had a thin nitrate layer that caused the base to separate from the emulsion. Has this problem been solved?

Safety film made between 1935 and 1965 contained organic materials called plasticizers in the base. These plasticizers, sometimes comprising as much as 25 percent of the base, evaporate slowly over the years and the base (whether microfilm or cut sheet) shrinks as much as 9 to 10 percent. Since all film made by any manufacturer during these years was so compounded, all of the collections are subject to this film base shrinkage. The base shrinkage results in emulsion wrinkles. We have developed a technique that allows these films to be salvaged but it is labor intensive at the moment.

55. The report mentioned that NATT had no reason to expand its laboratory capacity and that the Office of the National Archives accepted this position. Does this lack of coordination between the Office of the National Archives and the Executive Director persist, particularly in converting motion picture film and still pictures from nitrate to safety base?

No. See response to Question 53 above.

- ✓56. The report also suggested that an annual review of the preservation program be made but that it would require an overhaul of the laboratory management. Was this done?

Annual reviews, supplemented by quarterly reviews, as necessary, are held between the two primary offices—the Office of the National Archives and the Office of the Executive Director. Reviews are also held with the Office of Presidential Libraries, as necessary. The reviews of the preservation program, of course, encompass areas other than the operation of the NARS Preservation and Reproduction Laboratories. Additionally, a new chief of Photographic Services was appointed in 1977 and a reorganization to consolidate all photographic functions under his direction was accomplished in 1978.

57. The Preservation Services Division was criticized for acting slowly on ideas from the Office of the National Archives, such as the proposal to use video tape instead of motion picture film. Is this still a problem?

No. A significant improvement in the working relationship between the Audiovisual Archives Division and the Preservation Services Division has been achieved. The appointment of a new Photographic Service Branch Chief has greatly facilitated the improvement and current working relationship. The Audiovisual Archives Division is being informed of new developments which may have an impact on the cost and effectiveness of preservation activities, and participates in the decision-making process.

58. Technical problems were cited in using 16mm film for preservation copies, although a study of this technique was recommended to cut costs. Was the study done? If not, why not? If so, what were the findings?

A formal feasibility study was not required to eliminate 16mm film as a possible medium for the preservation copy of 35mm motion picture film. An informal review established that the better quality obtainable with 35mm is necessary for copying NARS holdings. Most newsreel footage was not shot under studio conditions and the image quality has further suffered as the film deteriorated with age.

59. Dr. Rhoads also referred to the 1969 Study of Preservation of Non-Textual Records, which said in reference to borrowing newsreel films; "Records of the type . . . can be accessioned with a negligible expenditure of professional archival time." Was the thinking here that the film could be acquired without examining it and stored at government expense pending conversion?

The point being made in the 1969 study was that valuable motion picture records would definitely be lost if action was not taken. It was deemed better to acquire the material, place it in a better storage environment, and begin to select and convert appropriate portions than to do nothing and ensure its total destruction.

60. The report mentioned that the Archives had been unable to make safety base copies of 2,000 reels of the Ford collection during the 5 years that it had been in storage. If there was a conversion problem then, why did the Archives acquire the Universal Collection without plans to convert the already decades old footage right away?

NARS acquired the Universal Collection with the understanding that it would duplicate

those portions which it judged worthy of preservation. The donors would not agree to dividing the collection at the location they were using to store the film. Since no master list of outtakes existed, it was necessary to work from the film itself to identify what existed before selections could be made. More than 1,000 hours of archivist time was required to appraise the film and personnel hiring limitations prevented increasing the size of the staff so that additional archivists could be assigned to the selection activity.

FISCAL YEAR	P.O.#	CONTRACTOR	\$ AMOUNT	Attachment 5
1971	R71-0400	U.S.D.A.	\$65,000.00	
	R71-0059	Capital Film Lab.	\$ 2,500.00	
1972	R72-0044	U.S.D.A.	\$75,000.00	
	R72-0286	Byron Motion Pic.	\$ 2,500.00	
	R72-0287	Washington Film Lab. Inc.	\$ 2,500.00	
	R72-0288	Capital Film Lab.	\$ 2,500.00	
1973	R73-0001	Byron Motion Pic.	\$20,000.00	
	R73-0035	U.S.D.A.	\$100,000.00	
	R73-0093	Washington Film Laboratories, Inc.	\$ 2,500.00	
	R73-0390	Capitol Film Lab. Inc.	\$ 1,000.00	
1974	R74-0021	Byron Motion Pic.	\$ 15,000.00	
	R74-0032	Washington Film Lab	\$ 1,700.00	
	R74-0087	U.S.D.A.	\$ 75,000.00	
1975	R75-0056	Byron Motion Pic.	\$125,000.00	
	R75-0058	Washington Film Lab	\$ 2,500.00	
	R75-0059	U.S.D.A.	\$ 75,000.00	
1976	R76-0052	Byron Motion Pic.	\$100,000.00	
	R76-0053	Washington Film Lab	\$ 5,000.00	
	R76-0081	International Film Lab.	\$ 25,000.00	
	R76-0054	Capital Film Lab	\$ 25,000.00	
	R76-0136	Byron Motion Pic.	\$ 30,000.00	
	R76-0029	U.S.D.A.	\$ 10,000.00	
	R76-1417	Wash. Film Lab.	\$ 75,000.00	
1977	R77-0023	Byron Motion Pic.	\$ 10,000.00	
	R77-0122	Capital Film Lab.	\$ 50,000.00	
	R77-0123	Bono Film	\$ 50,000.00	
	R77-0124	Byron Motion Pic.	\$ 50,000.00	
	R77-0125	Byron Motion Pic.	\$100,000.00	
	R77-0312	National Cine	\$ 5,000.00	
1978	R78-0021	Byron Motion Pic.	\$ 50,000.00	
	R78-0027	Capital Film Lab	\$ 50,000.00	
	R78-0028	International Film Lab.	\$ 20,000.00	
	R78-0029	Bono Film Lab	\$ 75,000.00	
	R78-0030	National Cine Lab	\$ 15,000.00	
	R78-0229	Library of Congress	\$ 50,000.00	
	R78-0357	Byron Motion Pic.	\$ 25,000.00	
	R78-0567	Library of Congress	\$ 2,500.00	
	R78-0777	Byron Motion Pic.	\$100,000.00	
	R78-1094	Motion Picture Unit University of Iowa	\$ 4,000.00	
	R78-1111	Color Lab.	\$ 5,000.00	
	R78-1134	Motion Picture Lab	\$ 1,000.00	
	R78-1135	Film Lab Svc. Inc.	\$ 1,000.00	
	R78-1192	The Color Lab	\$ 8,312.90	
1979	TF79-0040	Capital Film	\$100,000.00	
	TF79-0064	International Film Lab.	\$ 20,000.00	
	TF79-0065	Byron Motion Pic.	\$100,000.00	
	TF79-0067	Bono Film	\$ 75,000.00	
	TF79-0068	Pilgrim Film	\$ 15,000.00	
	TF79-0069	Capital Film	\$ 50,000.00	
	TF79-0070	National Cine	\$ 15,000.00	
	TF79-0071	Motion Picture Enterprises	\$ 3,000.00	
	TF79-0072	WRS, Inc.	\$ 35,000.00	
	TF79-0073	Film Lab. Svc.	\$ 3,000.00	
	TF79-0074	Color Lab.	\$ 10,000.00	
	TF79-0146	Bono Film Lab.	\$ 75,000.00	
	TF79-0388	Library of Congress	\$ 25,000.00	
	TF79-0595	Byron	\$100,000.00	
	TF79-0608	Bono Film Lab.	\$100,000.00	
	TF79-0609	International Film	\$ 20,000.00	
	TF79-0677	Motion Picture Unit University of Iowa	\$ 10,000.00	

APPENDIX 10.—RESPONSES TO SUBCOMMITTEE QUESTIONS BY GSA PUBLIC BUILDINGS SERVICE



General  
Services  
Administration Washington, DC 20405

AUG 29 1979

Honorable Richardson Preyer  
Chairman, Subcommittee on  
Government Information and  
Individual Rights  
Committee on Government Operations  
House of Representatives  
Washington, DC 20515

Dear Sir:

Thank you for your letter of July 24, 1979, addressed to the Acting  
Commissioner, Public Buildings Service.

The attachment addresses the questions you asked in your letter.

Sincerely,

R. G. Freeman III  
Administrator

Enclosures

## QUESTIONS FOR THE PUBLIC BUILDINGS SERVICE

1. Why wasn't the Library of Congress' Building B at Suitland included under the contract to install new air conditioners in Buildings A and C? Does PBS have any plans to upgrade the air conditioner in Building B?

The installation of new air-conditioners for Building B was scheduled for 1982. Presently PBS plans to add a standby air-conditioning compressor for Building B.

2. Mr. Mariotti testified before the subcommittee that someone in PBS told the air conditioner contractor on the day of the fire not to use power tools. Who was this person and why wasn't the order obeyed?

The transcript of Mr. Mariotti's testimony relating to advice given the air-conditioning contractor appears in error (reference page 55, line 16-18). We believe it should read:

"We had advised the contractor of that orally.  
On the day of the fire apparently the contractor's workmen did not recognize that prohibition."

Mr. Yip was the Construction Engineer performing inspection at the site of this contract and was the person who advised the contractor of the prohibition. Mr. Yip testified (reference page 59, line 14-18) that the contractor was

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cautioned on the same day that he was performing work in one of the workrooms. Mr. Yip recalls that this occurred in May 1978 and he had advised the contractor that while the open armature drill could be used in the workroom it could not be used in the vault area. As Mr. Yip testified on the day of the fire he had not checked the contractor's operation because he was working with the engineers from Architect/Engineering firm that designed the project to solve the problem of inadequate electrical power. He advises that he therefore was not aware that the open armature drill was being used that morning.

3. Would the new air conditioners have ventilated and dehumidified the vaults? Will the new compressor planned for Building C give the old air conditioner the capacity to dehumidify or ventilate the vaults?

The new air-conditioning system would have provided temperature and humidification control capabilities for the vaults, but not ventilation.

The new compressors to be installed in Buildings B and C provide a standby or redundant compressor unit to allow prompt restoration of air-conditioning service in the event of a compressor failure. The compressor is the most vulnerable part of the air-conditioning system and complete removal and replacement would require a

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shutdown of the entire building for a period of approximately 8 hours. The new compressor will be permanently connected into the system and used for daily service. In the event of compressor failure the operating engineers may restore service by manually operated valves activating the second compressor. The defective compressor may then be repaired without disruption of service.

4. How old is the air conditioner?

While individual components have been repaired or replaced over the years, the system is substantially the same as originally installed in 1945.

5. Acting Commissioner Keilman testified that PBS should consider constructing a new film building. Are there any plans for such a building, and if so, could you supply further details?

Mr. Keilman indicated that for long-term use, a new nitrate film-handling facility might be appropriate. Present plans are for GSA-NARS to be finished handling nitrate film in mid-1981, and construction of a new building is not appropriate. There are no plans for a new building.

6. Are the vault walls made of concrete or cinder block?

The vault walls are constructed of hollow concrete masonry blocks.

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7. Were the walls plastered?

The walls are not plastered.

8. Please provide copies of the contract to install a new air conditioner in Buildings A and C and the sprinkler systems in Buildings B and C.

Copies are attached.

9. Did PBS consider installing humidity monitors in the vaults? Did the Archives ever request them?

The Archives had originally requested humidity control and monitors and the new air-conditioning contract included humidification with a visual humidity indicator in the corridor adjacent each vault door.

10. In July of 1973, the Archives recommended decomposition vents for the vault buildings to eliminate the chance of explosive gases building up. Why weren't these ever installed?

Decomposition vents are designed to vent out spontaneous decomposition products of nitrate film as they are produced, and so are not compatible with temperature control. Considerable extra cooling would have to be provided to bring in hot outside air, cool it, and exhaust it with decomposition products.

Decomposition vents referred to in NFPA No. 40, Cellulose Nitrate Motion Picture Film, are something different. They

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are vents which open to permit escape of gases resulting from partial burning or decomposition of film. The blowout panels provided in the Suitland Film Vaults serve this purpose, and are an acceptable substitute in NFPA 40.

11. The GSA has opposed self-closing vault doors, which the National Fire Protection Association recommends. What is the reason?

The existing doors have proved themselves on several occasions and have not failed. While a vault is occupied the vault door is left in the open position for safety reasons. This indicates that someone is in the vault and also permit rapid egress. The National Fire Protection Association recommends both a self-closing swinging door and an automatic sliding fire door on the inside of the vault. If the sliding door closes while someone is in the vault, it would require appreciable time and effort to open the door.

12. Who and what determines the composition of a GSA committee to investigate a fire?

An ad hoc committee is established by the Regional Administrator after a review of the circumstances of a fatal or serious injury, serious fire, or an accidental incident involving major property damage. The committee is to consist of the

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Chief, Accident and Fire Prevention Branch, or his representative, who in turn, recommends two or more other members. The members are selected on bases of:

1. their abilities to apply accident and fire investigative techniques,
2. their technical knowledge and experience in the safety field and/or in the field of particular involvement,
3. their availability to respond to the accident site in a timely manner and to be free to devote the amount of time required to investigate.

Additionally, OSHA requires employee representation on the committee.

13. Was any consideration given to appointing a member from outside GSA who might have been able to bring a more independent viewpoint to the investigation? Is this ever done in other GSA investigations?

The committee members selected were considered appropriate and fulfilled the above criteria. Ad hoc investigative committee membership is not necessarily limited to GSA employees. For example, people from outside GSA were committee members for the St. Louis Records Center fire and the Pentagon cafeteria fire.

14. Did the committee feel constrained because GSA employees were being asked to investigate fellow agency employees?

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No - this is done in our daily work in plan review and required survey reports which identify areas of deficiencies in design, construction, and operations. Criticisms of safety and fire protection deficiencies are made regularly by accident and fire protection employees and are applied as appropriate to any level of activity up to and including top management.

15. Why couldn't the committee determine what caused the fire?

The cause of a fire which starts without witnesses is subject to some uncertainties. All of the circumstances are studied and obvious impossibilities are eliminated. The causes which remain are ranked as to probability, and most probable cause is arrived at. In this way the investigative committee eliminated spontaneous ignition as the cause of the fire because the film was sound, having been recently inspected, the weather was cold, below storage temperature requirements for weeks, the fire started in a vault in which work had taken place that morning. The presence of badly deteriorating film on the point of self-igniting would have made breathing difficult for the workmen. Questioning of those present indicated no unusual odors or vapors. The fire started in a vault in which the door was left open by air-conditioning workmen. This fact was stated by a

number of witnesses and reported in the Prince Georges County Fire Department fire investigation report, although they chose to ignore it in order to place the origin in a closed, undisturbed vault; a more reasonable location for spontaneous ignition.

The committee found that most probable cause was connected to the work in progress because of the location, the open vault, and the hazards introduced. Also, the cause did not involve direct ignition of film, as nitrate film fires develop rapidly, in seconds, but the fire did not involve nitrate film until 15-20 minutes after work stopped. This factor strongly suggested that cardboard boxes, present in the vaults, were involved in the fire cause. Burned cardboard was present in the debris. Cardboard could have been ignited by several mechanisms present, could have smouldered for a while, burst into flame and heated film in cans to ignition. Cardboard could have been ignited by a cigarette or cigar discarded or forgotten. It could also have been ignited by a hot chip of reinforcing steel, or by an overheated drill, as discussed. Arson, although possible, is improbable.

The committee determined that the most likely chain of events was that cardboard was ignited in a vault by

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construction activity - likely smoking - smouldered for a period, burst into flame, ignited film in a can, and the fire proceeded very rapidly from that point.

16. How much time did the committee spend on the investigation?

The committee spent approximately 25 days on the investigation. This would equate to 125 mandays.

17. Did the committee examine the Universal sprinkler contract during the investigation?

Yes, the committee did examine the Universal sprinkler contract during the investigation.

18. Did the committee examine the contract to install the air conditioner during the investigation?

The committee did examine the contract to install the air-conditioner. This can be identified in the last part of paragraph 3, Part VII of Building Modifications, of the AD Hoc Committee.

19. Why didn't the committee concern itself with the managerial breakdowns in administering the contracts and in maintaining the building?

It was felt that there were errors in judgement and omissions but in no way was there any evidence that would indicate a managerial breakdown. The hazards of

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nitrate were expressed at several pre-construction meetings. This concern was not fully shared by the contractor and those who administered the contract. The committee being aware of this and the vagueness of safety precautions in the contract, stipulated in the recommendations that all contracts (specification) be submitted to the Accident and Fire Prevention Branch and NARS officials for review prior to any request for bids.

Maintenance was being performed on a daily basis to the air-conditioning system by the field office. The sprinkler system, including the water alarm (sprinkler alarm) was not being maintained by the field office because the alarms were being installed under the sprinkler contract and remained under control of the contractor until contract completion. The system had not been tested or accepted by the Construction Management Division. The system would only be maintained by the field after acceptance by GSA.

20. Why didn't the committee determine who was responsible for the malfunctioning of the sprinkler alarm?

Testing for contract compliance and acceptance had not been performed at this time. The system was still the responsibility of the installer. The malfunctioning of the sprinkler alarm would be the responsibility of the installer.

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21. Why didn't the committee attempt to interview the PBS maintenance man, Mr. Livingston, who was supposed to have checked the air-conditioner the morning of the fire?

The committee did interview Mr. Livingston, the PBS maintenance man although not identified in the report. The unit was inspected at 6:30 a.m. and found to be functioning normally. The unit was checked by gauges. The temperature was 55 - 60<sup>0</sup> on the suction side and 125 on the discharge side to the cooler coil outside the building. Discharge temperature is reduced by blowing outside air through a coil unit and is then recirculated to the building.

22. In light of these questions, does PBS believe that the committee delved as deeply as it should have into the causes that contributed to the fire?

The Preyer Committee has done well in familiarizing itself with the investigative reports of the Suitland Film Vault fire. Many points have been brought up for review by the committee and its witnesses. However, no items have been brought up which were not considered and investigated by the GSA Ad Hoc Investigation Committee. We are pleased to answer these questions, some of which reflect adversely upon our control of operating details, but which must be faced.

We also welcome the opportunity to comment on

unsupportable assumptions made by some witnesses, until now uncorrected. The fire department report concluded that the fire started in Vault 6 or 8, most likely 8, because fire damage was most severe in these vaults. However, their report states that the fire was in an open vault on the northeast side, which would have to be Vault 10 to 14, where work was taking place. This location of the origin of the fire is also supported by witnesses across the street. The fire department report also states that sprinklers were operating; this would minimize fire damage and prevent spalling of concrete. Our calculations indicate that the sprinklers would minimize fire damage (without necessarily extinguishing the fire) in six vaults. When the fire extended to more than six vaults, additional sprinklers opening would deplete water supplies to the point where sprinklers would no longer spray and control damage. Severe fire damage in Vaults 6 and 8 indicate that when they were ignited, more than six vaults were already on fire. This basic error in the location of the origin of the fire led to the assumption by the fire department and others that the cause of the fire was spontaneous ignition.

The idea that the air-conditioning system was malfunctioning to the point of heating a film vault(s) above the ignition temperature of nitrate film was advanced and received serious consideration. Those witnesses asked about on it had no idea of how an air-conditioning system works. The Suitland

Film Vault system malfunctions in two ways. Either the compressor stops, in which case cooling activity ceases, or the freon charge is depleted by leakage, in which case the compressor runs continuously to try to cool sufficiently. The system has been inspected three times a day for years, far in excess of other cooling systems in GSA. It was inspected at 6:30 a.m. the morning of the fire and was found to be operating normally. This is the same time workmen thought to be responsible for the fire later reported the compressor to be "short cycling." It was, of course, functioning normally, cutting off and on to manage the cooling load.

The workmen thought to be responsible for the fire also reported, after the fire, that the vaults were "warmer than usual," although the long-time employees working elsewhere in the building noted no unusual temperatures. Those permanent employees are especially sensitive to minor temperature changes in the vaults, not to mention the rise in temperature of several hundred degrees necessary to cause sound nitrate film to be predisposed to easy ignition. Air-conditioning experts consulted by the Ad Hoc Investigating Committee could find no basis for a theory that air temperature had any effect on the ignition or spread of the fire. A written opinion is included here for your information.

14

23. In a statement submitted for the record, William McHugh, the Archives employee representative on the investigating committee, said that fellow members of the committee were uninterested in examining the theory that the fire resulted from spontaneous combustion. In particular, Mr. McHugh said that Mr. William Murphy of the Archives "expressed the view that dwelling on such matters would only make the agency look bad." What is PBS' response to this statement?

Mr. McHugh is well aware that the committee thoroughly examined the theory that the fire resulted from spontaneous combustion. Mr. McHugh was and is disappointed that the preponderance of expert opinion determined that spontaneous combustion was so highly unlikely under the prevailing conditions at the time of the fire as to be virtually impossible. The committee did not rely solely on internal expertise on this question. Opinion was sought and received from Alan Cobb, retired Safety Director of Eastman Kodak, and William Doyle, Chairman of the National Fire Protection Association Committee on Storage, Handling, and Transportation of Hazardous Chemicals, the committee responsible for NFPA 40, Cellulose Nitrate Motion Picture Film. Both agreed that conditions at the time of the fire made spontaneous ignition extremely unlikely, and contractor operations highly suspect, as cause of the fire.

15

We checked with Mr. William Murphy as the source of Mr. McHugh's quotation. Mr. Murphy denied saying anything similar to Mr. McHugh's quotation. Arriving at a determination of spontaneous ignition as a fire source would be desirable from an agency standpoint, with the implication that, no matter how much care was taken, nitrate film is so unstable that it will self-ignite under nearly any circumstances. That would relegate the event into the category of an Act-of-God and remove much of the blame from acts and omissions of agency employees and contractors. Unfortunately, spontaneous ignition was not the cause, and that excuse is not available to us.

If nitrate film was as unstable as Mr. McHugh claims it is, employees would be in constant danger. The history of nitrate film handling in the United States proves otherwise. Hundreds of thousands of people have handled millions of feet of film safely since the introduction of motion picture film, following sensible precautions. Nitrate film in good condition, as demonstrated in our inspection, is not subject to spontaneous ignition, and is not subject to ignition at temperatures below several hundred degrees fahrenheit.

QUESTIONS FOR MR. O.E. SHIPP, BUILDINGS MANAGER  
SUITLAND COMPLEX

1. When was the sprinkler alarm for Building A installed?

and

2. Was it ever hooked up to the alarm panel in the guard's office at the complex?

The sprinkler system installed by Universal in Building A in 1974 had an audible local alarm. That is why the bell was sounded at Building A only. As part of the contract for sprinkler systems in Buildings B and C the contractor was required to install the devices to generate an alarm signal for Building A and electrically tie the alarm signal along with the alarms being installed by him in B and C into the fire alarm console in the guard's office at FOB #3, which is remote from the vaults. The contractor completed this work in the latter part of May 1978. Final inspection and testing of the alarm equipment was performed March 27, 1979.

3. Who at PBS was responsible for testing it? When was it last tested?

Verification testing for contract compliance is the responsibility of the office administering a contract--in this case the Construction Management Division. Routine testing for maintenance or verification of operational capability is the responsibility of the Buildings Operation Division or Buildings Manager.

2

Final testing for contract compliance was performed March 27, 1979. Maintenance testing is generally performed by the Fire Alarm Shop.

4. Is there record of acceptance of the contract to install the alarm? If so, please supply it.

Final inspections for acceptance of the work performed under the contract were performed by Construction Management Division personnel on March 21, 1979, and March 27, 1979. The alarm system was inspected on March 27, 1979, by Mr. E. Houcek. Copies of the reports are attached. The correction of the list of defects or omissions resulting from those inspections are verified and the list is annotated indicating the date the item was observed corrected and the initials of the person who made the determination. Final payment is made to the contractor after all items are corrected.

5. When was the last time that the sprinkler alarms in Buildings B and C were tested before December 7, 1978?

Prior to 1978 there were no sprinklers in Building C. The alarm system was installed and tested as indicated in 1 and 2 above.

6. When were they last tested?

3

Maintenance testing was performed the week of July 23, 1979.

7. Is there a schedule for testing the alarms?

The schedule for testing the alarm is weekly.

8. Would it be feasible to connect the alarms directly to the fire department?

No. The Prince Georges Fire Department does not accept direct alarm connections. GSA maintains a Control Center for fire and security alarms throughout the metropolitan area. Waterflow and valve closure alarms are transmitted to the GSA Control Center. Waterflow alarms are reported to the appropriate fire department as a fire alarm. Valve closures are reported to the GSA Buildings Manager.

## APPENDIX 11.—RESPONSES TO SUBCOMMITTEE QUESTIONS BY LIBRARY OF CONGRESS



## THE ASSOCIATE LIBRARIAN OF CONGRESS

WASHINGTON, D.C. 20540

August 13, 1979

Dear Mr. Preyer:

Enclosed are answers to the questions you submitted in your letter of July 26 to complete the Library of Congress' transcript of the hearing on the fire at the Suitland vault.

We appreciate the consideration you and your Committee extended to us.

Sincerely yours,

Donald C. Curran  
The Associate Librarian of Congress

Enclosure

The Honorable  
Richardson Preyer  
Chairman  
Government Information and  
Individual Rights Subcommittee  
Committee on Government Operations  
U. S. House of Representatives  
Washington, D. C. 20515

1. Mr. Curran testified before the subcommittee that the nitrate film arriving at either Suitland or Wright-Patterson Air Force Base is inspected at once. Is the film inspected reel-by-reel?

Yes, each reel is inspected. Discards sometimes occur in the middle of a multi-reel feature.

2. Mr. Steven Bush, the Library's safety officer, testified before the subcommittee that he recommended a number of improvements to Building B but that he believes nothing has been done. Can you provide details of any improvements that the General Services Administration has made or planned?

In response to a May 10 letter from the Library of Congress urging action on the completion of the installation of a sprinkler system and replacement of the air conditioning system, the Library received the attached letter from John T. Myers, Regional Commissioner, Public Buildings Service, dated June 7.

3. If a fire were to occur at the Library of Congress, how would the investigation of it differ from the GSA's investigation of the Suitland fire?

Not knowing all the details of the GSA investigation, it is difficult to answer this question. The Library of Congress retained an outside consultant to evaluate fire safety in its two Capitol Hill buildings and has requested that the Architect of the Capitol, who is responsible for mechanical and structural care of the buildings, request funds to proceed with implementing the recommendations of the independent consultant.

Certainly, the Librarian of Congress would consult with Members of the Joint Congressional Committee on the Library to obtain their views on the type of investigation to be undertaken and whether such an investigation should be undertaken by an outside consultant or in-house personnel.

8/10/79



General Services Administration - Region 3  
Washington, DC 20407

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JUN 7 1979

Mr. Donald C. Curran  
The Associate Librarian of Congress  
The Library of Congress  
Washington, DC 20540

Dear Mr. Curran:

Thank you for your letter dated May 10, 1979, inquiring about our plans to improve conditions at the Suitland Film Vaults.

I have made inquiries from my staff and was informed that the Construction Management Division is completing the design work on the conversion of the sprinkler system and installation of a standby air-conditioning chiller. I was also given the following tentative schedule for the project:

Design Completion - June 4, 1979  
Contract Award - July 31, 1979  
Construction Completion - October 31, 1979  
for the sprinkler system and  
November 30, 1979, for the air-conditioning

I hope the above meets with your approval.

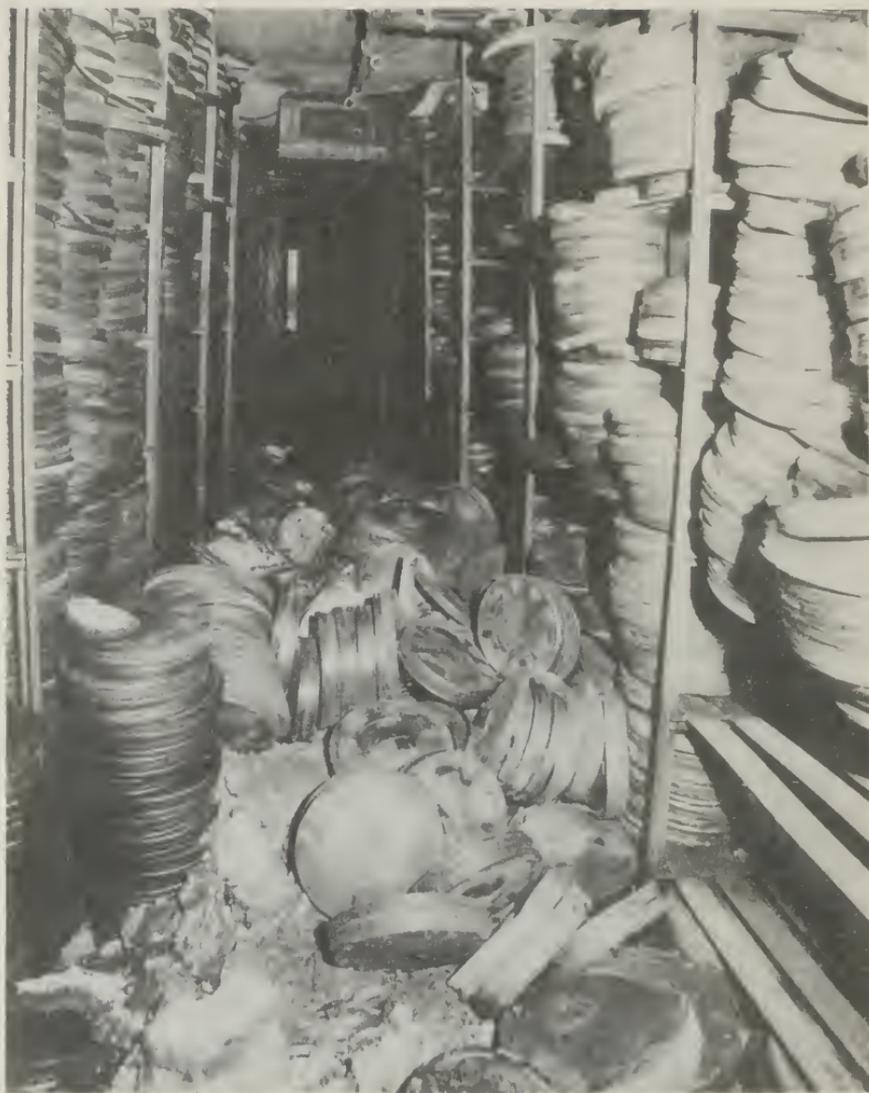
Sincerely,

  
JOHN T. MYERS  
Regional Commissioner  
Public Buildings Service

## APPENDIX 12.—PHOTOGRAPHS OF DAMAGED FILM VAULTS



Building A—Saturday morning, December 9, 1978.



*Fire-damaged Film Vault Saturday, December 9, 1978. Open vault door in background.*



*Fire damaged Film Vault Saturday, December 9, 1978. Disconnected 4-foot sprinkler pipe in left foreground.*

## APPENDIX 13.—CHARTS USED IN TESTIMONY BY FIRE CHIEF ESTEPP

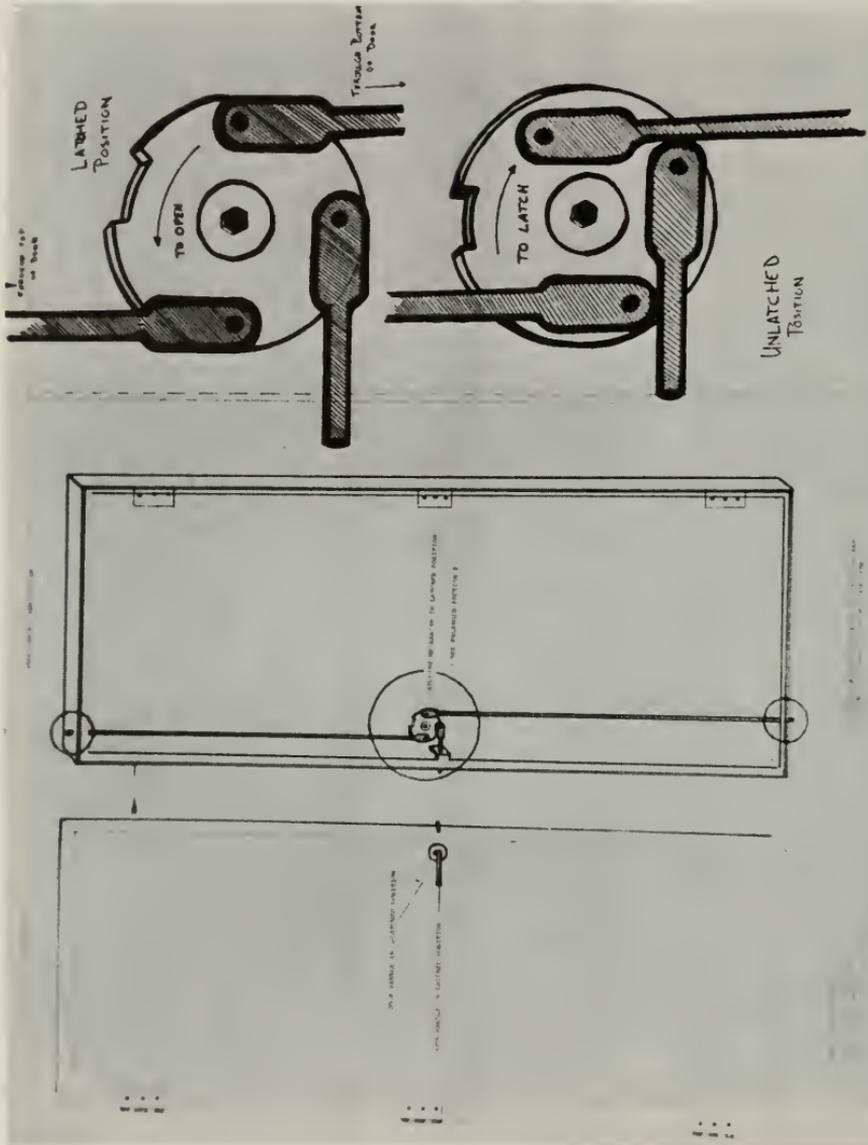
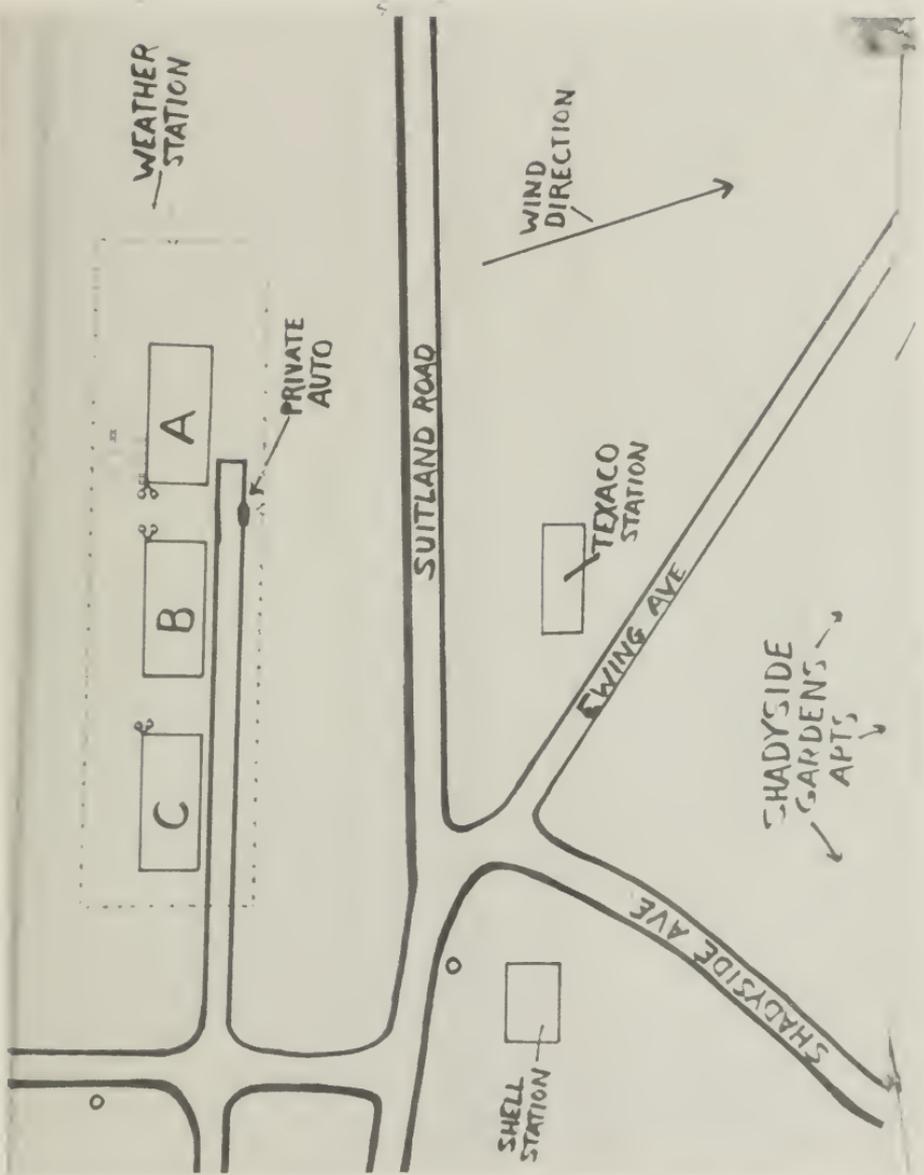


Diagram of latches for film-vault doors.



Layout of film-vault buildings at Suitland Federal Complex.















