

National Park Service



Extending the Longevity of NPS Photographic Collections

PMIS# 107851



Harpers Ferry Center, Department of Media Assets

Film-based Collections

cellulose nitrate sheet film
cellulose acetate sheet film
polyester- based sheet film
color negatives
color slides
motion picture film
microfilm
microfiche
x-rays





Why do we need this project?

NPS has not yet addressed, on a service-wide basis, the vast quantities of deteriorating acetate and color film in its collections. This project will:

- Develop and implement efficient procedures for managing NPS film-based collections
- Provide cold storage that will slow the rate of deterioration of all film-based materials and
- Provide valuable training and expertise to park staff that will generate a higher level of professional care for collections

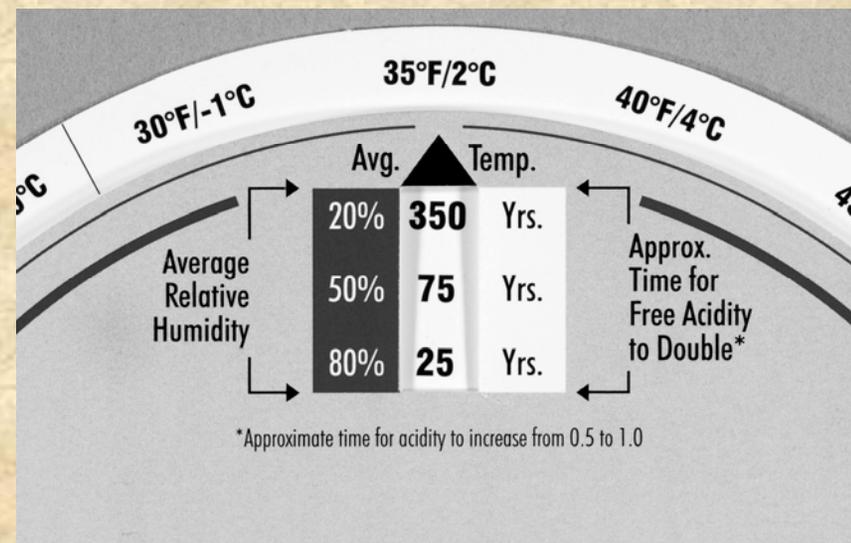
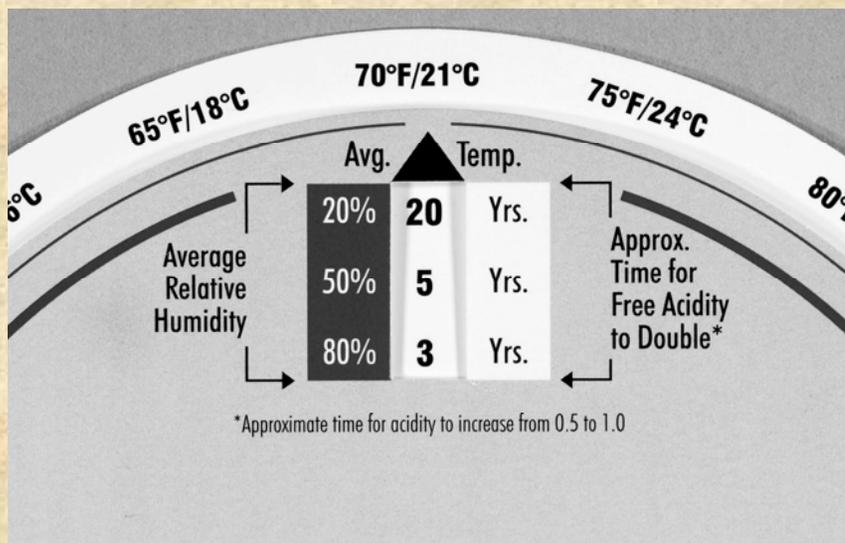
Cold Storage – What is that?



- Temperatures ranging from approximately -20F to 40F appear in the professional literature under the rubric of cold storage. Relative humidity is usually between 30-40%
- All color photographic materials, cellulose nitrate films and cellulose acetate films will benefit from cold storage



The Long-term Benefit of Cold Storage



Our goal for this project is to get all of the NPS film based collections into cold storage at 35 degrees F and 35% RH



Project Goals

- **Assess collection content and storage techniques through a web based mini-survey**
- **Respond to individual needs of parks through onsite visits and training**
- **Conduct additional analysis of collections by testing with Acid-Detection Strips**
- **Develop cold storage packing requirements, equipment and installation procedures**
- **Provide cold storage units and packing supplies**
- **Continue to monitor collections through environmental software**

What parks are eligible to participate?



- Fee collection parks that retain 100% of admission fees
- Parks that do not collect admission fees
- 80% retention parks can also benefit from this project



What regional assistance do we need at this time?

- Designate a regional contact for this project
- Submit regional contact names to HFC project staff
- Submit list of designated park contact names to HFC project staff
- Encourage parks to complete web-based mini survey in a timely manner
- Distribute additional information about this project to parks in your region



What will this project cost the parks?

- Salary of park staff member who is the contact for the project
- Salary of the park staff member(s) who will receive training and work with project staff on packaging collections
- Use of space during on-site visits and training
- Use of space for freezer units
- Use of additional power for freezer units

Benefits to Participating Parks

- Improve condition of film based collections relative to the NPS and DOI standards (NPS Goal 1a6 and DOI Strategic Plan Goal PEM3.002)
- Address health & safety issues in collections (exposure to acetic acid, nitrate film issues, etc)
- Provide archival supplies, freezers, training and training materials at no cost to parks
- Provide training for park staff that will increase the professional level for the care of collections
- Facilitate long term preservation of film based collections



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Collaboration with Technical Experts Film Preservation Conference

- Gathered expertise from around the country concerning museum collections and cold storage for three-days of brainstorming sessions (February 2006)
- Consulted and involved NPS Museum staff from various regions to make sure specific needs were addressed





Film Preservation Conference Participants

- U.S. National Archives And Records Administration
- National Gallery of Art
- Library of Congress
- Image Permanence Institute
- Conservators in Private Practice
- NPS – Museum Staff from WASO, HFC, SEAC, WACC



Web-based Mini Survey

- To be completed by park staff and contains:
 - film based collection information
 - size, media type, age, use, etc.
 - collection storage area information
 - heating, cooling, humidification, dehumidification, ventilation, air filtration, T and RH monitoring
 - information on staff museum experience and expertise
- IPI is the contractor for design, management and interpretation of data

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On-site Visits & Training

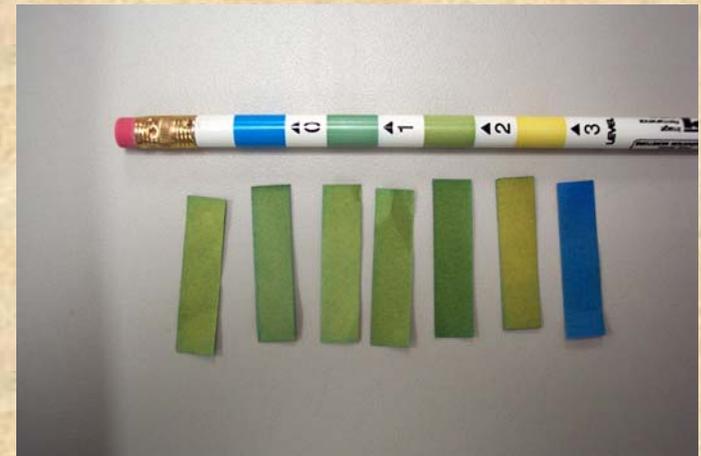
- Use and interpretation of A-D Strips
- Film Identification
- Proper housing and storage techniques
- Preventive conservation practices
- Environmental monitoring





A-D Test Strips

- Developed and manufactured by the Image Permanence Institute (IPI)
- Dye-coated paper strips for detecting and measuring the severity of acetate film deterioration or "vinegar syndrome"
- A-D Strips are acid-base indicator papers that change color in the presence of the acidic vapor given off by degrading film



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Provide cold storage units and packaging supplies



Upright commercial freezers (SAJU)



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Commercial-grade freezer at EVER



Cold storage vault at YELL

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Cold Storage Vault (YELL)



Freezer Storage Boxes (using CMI method)

- Multi-layer packing system
- Low density, polyethylene Ziploc bags
- Pieces of precut matte board
- Humidity indicators
- Archival storage boxes



Vapor-proof Packaging

- Marvelseal[®]
PE/Metal/Nylon
 - ❑ 3 layer laminate
 - ❑ Heat-sealable
 - ❑ Bonds well to tape
 - ❑ Aluminum foil layer (opaque) is excellent barrier to gases and water vapor
 - ❑ Marvelseal[®] 360
 - ❑ Marvelseal[®] 1311 Nylon fabric-bonded
- Mitsubishi Pealpepet[®]
(PE/Metal/PE/PET) may be an option





What happens to collections if they are not placed in cold storage?

- Health & safety issues
- High costs to duplicate and reformat later
- Deterioration
- Loss of collections

Health & Safety Risks



- Gasses from deteriorating negatives emit noxious odors
- Skin, eye and respiratory irritations
- Allergic sensitivity
- Dizziness and lightheadedness
- Flammable nitrate film

Examples of costs associated with the acetate film preservation project at EVER

- \$1,845 per freezer x4
- \$3,146 to transfer four 16mm films to DVD
- \$107,081 estimate for preservation copies of (26) 16mm films
- \$1,785 to strip pellicles and duplicate 28 severely deteriorated negatives



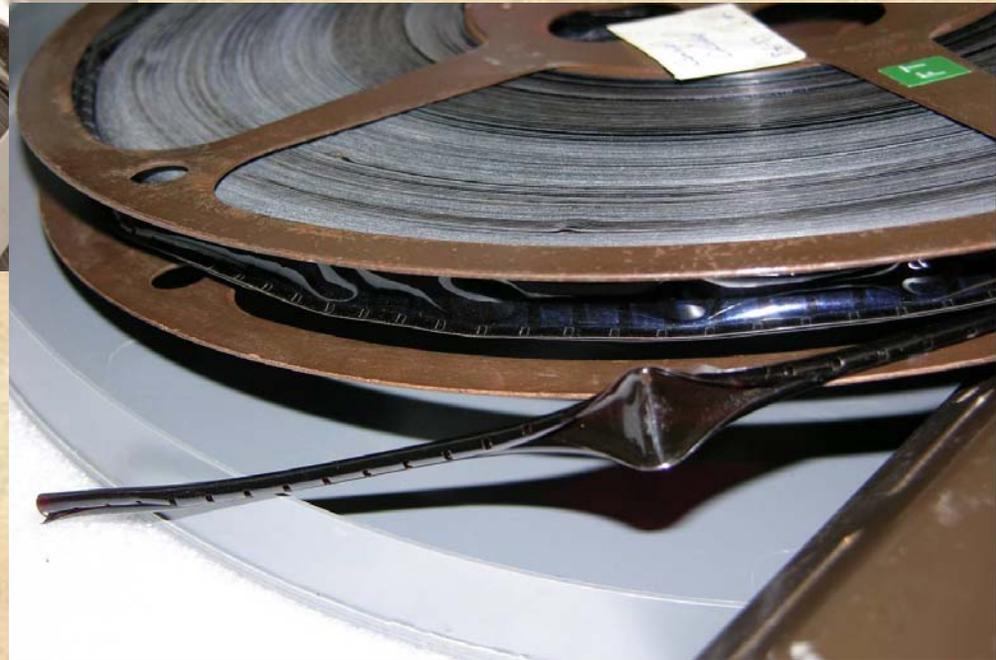
Acetate Deterioration



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Motion Picture Films



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Blue staining – result of dye reforming in anti-curl layer

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Cellulose Nitrate Film



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Color Slides



Color slides are subject to fading, as seen here (c. 1960's)

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Color Prints & Cold Storage



Faded chromogenic prints



Project Status

- IPI will have the survey online in early 2007
- Select a term or contract photo conservator
- Develop training materials (Conserve-O-Gram, video, workbooks, etc.)
- Develop SOP's
- Travel to parks



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Please call or email us

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We look forward to working with you!