LIBRARY OF CONGRESS
THE NATIONAL RECORDING PRESERVATION BOARD
Oral Testimony Statement for December 19th, 2006 Hearing in New York City

Submitted by

Chris Lacinak
AudioVisual Preservation Solutions
426 Sterling Place
1A
Brooklyn, NY 11238
917-548-8632
chris@avpreserve.com

Representing

The Association of Moving Image Archivists (AMIA)

&

The Audio Engineering Society Technical Committee on Archiving, Restoration and Digital Libraries

I. Introduction

A. Personal

My name is Chris Lacinak. I am here today representing both the Association of Moving Image Archivists (AMIA) as well as the Audio Engineering Society Technical Committee on Archiving, Restoration and Digital Libraries. I'd like to give just a brief introduction and some background on myself and the two organizations that I'm representing.

I have been involved in sound and moving image preservation since 1999. My experience has been broad and diverse. I have worked at every level within a preservation lab from working as a front line engineer to being Vice President. I am familiar with the day in and day out practical challenges of preserving sound and moving image materials from the practitioner and administrative perspectives. I am intimately familiar with every aspect of a preservation lab. From the client side I have worked with the diverse mix that make up the AMIA and AES communities including individuals, government, non-profits, corporations and academic institutions. I have worked with a broad range of goals and objectives, budgets and collection types and conditions. I am active in the community chairing committees within both AMIA and AES.

B. AMIA

AMIA maintains the mission of being a dynamic professional association dedicated to advancing the preservation, collection, and use of moving images through public and professional education, with 4 primary objectives. These objectives are to:

1. raise public interest in the preservation and use of moving images, as educational, historical, and cultural resources;
2. advance the professional development of moving image archivists;
3. foster research and collaboration; and
4. promote standards and best practices.

And some facts about AMIA

- AMIA is the world's largest professional association of moving image archivists, currently representing over 750 individuals and institutions from the United States and Canada and around the world.
- AMIA is a 501c3 public benefit organization
- The AMIA Office is in Los Angeles, we have a full-time staff of 3
- Staff report to a volunteer Board of Directors (9)
- AMIA is unique in that we are an individual-based organization

- AMIA is a member of the Coordinating Council of Audiovisual Archives Associations (CCAAA)

At the surface it may appear interesting that an association focused on moving image archives may have an interest in sound preservation. In fact, AMIA very much holds an interest in sound preservation and in these hearings. At a conceptual level AMIA and its members recognize the enriched experience that sound adds to sight and image, in our everyday lives and in the experiences captured and reproduced through technology. On a practical level there is the most serious recognition given to the very real and physical connection shared between moving image and sound materials. Not only is there sound attached to much of the moving image that lives in archives, but many archivists within the AMIA community of course have sound only collections alongside and as part of the moving image collections they oversee. The issues with, and goals and objectives for both sound and moving image materials are generally shared. Therefore, inherently in the recognition and advancement of sound preservation there is the recognition and advancement of moving image preservation.

C. AES

The Audio Engineering Society, now in its fifth decade, is the only professional society devoted exclusively to audio technology. Its membership consists of leading engineers, scientists, manufacturers, audio archivists and other authorities. The Technical Committee on Archiving, Restoration and Digital Libraries within the Audio Engineering Society has a mission statement that reads as follows:

“Audio preservation work draws on a wide range of skills and understanding including proper reproduction of legacy recorded sound formats, digital and analog audio recording, digital editing, systems testing for quality control, and technical and administrative metadata. The committee seeks to be a resource to the AES membership by disseminating information about these and other topics related to the archiving and preservation of audio carriers and the information, sometimes referred to as 'essence', therein contained.

The committee recognizes that audio preservation is not necessarily an 'end of life' process for audio objects but rather is a set of principles and procedures that can be applied from the time of creation for any given audio object. This is immediately relevant in a world of "born digital" audio. The committee is therefore interested in providing educational meetings and publications which we hope will benefit AES members involved in diverse segments of the audio industry.”

The interest of the TC ARDL is direct and clear. There is a shared mission between the goals of the NRPB and the TC ARDL. It is in recognition of this that I am here to speak today. Within the TC ARDL we have archivists from

universities, government, established music groups as well as preservation practitioners.

It is with experience in both the AMIA and AES TC ARDL communities that I speak from, and on behalf of today. The topics discussed originate from the collective concern and interest of these communities.

II. Recurring Community Wide Issues

While there are a great number of issues that the sound preservation and archive community deals with regularly I have listed 10 basic recurring issues that are consistent topics within the AMIA and AES communities.

A. Obsolescence of technology and expertise

We constantly face obsolescence of the technologies and expertise that support our objects of preservation. Obsolescence is a fundamental concern of preservation and access to content and a primary issue informing strategy. Obsolescence factors often leave us in the dark. Obsolescence is not a black and white issue. With the fading away of equipment and expertise into obsolescence we lose the nuances associated with intimate knowledge of a technology. With the loss of nuance comes the lack of assurance that we are able to reproduce a faithful reproduction of the original recording. Because obsolescence is not a black and white issue archivists are not always clear on the risk factor to assign a format. This lack of clarity on such a significant issue can have dire consequences. We must as a community come up with ways to combat obsolescence.

B. Lack of adequate resources and tools

In the NRPB Engineers Roundtable Study meetings we discussed and documented the need for some resources and tools that the community could use. These only touch the surface of our needs and many of these have been discussed for years without materialization. The community is generally either lacking or crudely adopting tools that exist for other fields to use for preservation purposes. We need resources and tools for lab work; we need resources for training and education; we need tools for management of metadata; we need tools for assessment and prioritization. Professional tools that exist for broadcast are largely misrepresentative of our needs in the preservation community. They deal with consistent quality content and use broadcast specifications as parameters and quality control points. This is not appropriate or sufficient for the preservation community. The needs are practically endless. We need the creation of preservation focused resources and tools across the board. We need tools and resources that increase knowledge, efficiency and focus the need for expertise wherever possible.

C. Reactive action only

The lack of resources combined with the sheer quantities that we face has effectively placed our community in crisis management mode at all times. This has placed us in a position where we either take action only when the situation is dire enough to make itself evident or we fail to take action at all. The inability to be proactive in our efforts and gain adequate physical control over our collections has in many cases left the decision on preservation of content to fate instead of with curatorial, library or archive staff.

D. Lack of education as supplement to the classroom as well as a substitute to the classroom

With the obsolescence of all things legacy including documentation and expertise it is of paramount importance that good information be documented and disseminated about legacy materials and technology. This is relevant not only in programs within academic institutions, but also for all of the institutions that are charged with the mission of preservation of collections of audiovisual materials. It is found on an ongoing basis that access to equipment and experts to maintain and repair equipment is increasingly limited. Education and dissemination of information supported with well documented and well structured resources is an imperative part of the overarching preservation strategy for our collective holdings. We need to put forth the effort and resources now to attain and form this body of work before it is too late. This is not a new message, but it is a message that has yet to be met with a significant enough effort to ensure the persistence of the relevant knowledgebase and resources. With funding consistently going towards reformatting projects and digital projects our separation from legacy technology grows further. There needs to be much more funding put into educational resources.

The recognition of the need for such resources came from the experience that I and Mona Jimenez shared in teaching together in NYU MIAP program over the past 3 years. At the end of teaching for the second year we realized that there had been a recurring conversation between us that hadn't been resolved through reaching out to colleagues or in-depth research. This was the lack of resources we were able to find to teach the subject of video preservation. We were spending inordinate amounts of time preparing resources for teaching that were simply non-existent otherwise. This included audiovisual demonstrations as well as textual documents, subject topics and the overall curriculum. Classes taught on media preservation elsewhere focused more heavily on policy and management of collections. Our course was hands-on and intended to have the students engage in the practices of video preservation reformatting. We found ourselves struggling to come up with a great deal of meaningful and appropriate readings on the subjects we were teaching. We spent countless hours seeking, reviewing and compiling

sources from the fields of library sciences, engineering, production, and material sciences. These resources then had to be interpreted under the focused lens of preservation, extrapolating the implications to preservation. This created difficulty in delivering the fundamentals outside of class and being able to elaborate on and act on them in class. In those first two years the classes became more about arriving at an understanding of the fundamentals with little time left for practical application.

We need resources that provide an out of classroom reference to be used for delivery of fundamentals, jumping points for elaboration and points of question and discussion. From the student perspective the orientation of such a resource should be able to be picked up and read from two different perspectives.

1. The technician that aims to perform preservation work and needs to be made aware of the implications of their actions on the goal of preservation.

2. The archivist that oversees a collection and needs to become more familiar with the system that houses the object of preservation in order to be responsible and well informed in their duties which include overseeing preservation activities.

E. Broad fields of expertise required

The act of moving image and sound preservation involves a broad range of knowledge and practice from numerous and diverse fields. These include library science, engineering, audiovisual production, material sciences and chemistry. Therefore people from many backgrounds embrace and are embraced by the field of moving image and sound preservation. This dependence on such a diverse skill set has been both a help and a hindrance. It is one of the aspects that make the field such an interesting one to participate in and makes for a dynamic community. The hindrance is that the allocation of need has been disproportionate to the allocation of available expertise. It is only recently that this gap has narrowed and the field is beginning to learn to integrate new fields of expertise into its progression. This has resulted in an imbalanced practice over the years one could generalize as strong in the library science domain and weak in all others. One of the indicators that this has shifted and rather dramatically is a statistic from Charlie Kolb of the National Endowment for the Humanities. Mr. Kolb stated that before the past few years there were generally two to three proposals per year for funding R&D projects. R&D projects would typically be characterized as cutting edge technology or scientifically based. In the past few years there have been more along the lines of fifteen proposals per year for funding R&D projects. Another interesting fact from Mr. Kolb is that there used to be approximately five categories under which proposals could be submitted. Now there are closer to fifteen categories. These both serve as indicators of the actualization of the broadening of the community and recognition of its expansiveness.

F. Loss and protection of valuable proprietary information relating to preservation

Valuable information that holds the key to unlocking many of the issues we face has and is fading away with the discontinuation of products and the death of companies that made them. With their loss goes the hidden proprietary information that our community is now spending precious funding on to retrieve through R&D projects. Not only the chemical and physical make-up of the media, but nuances of the technology and administration of the technology that are invaluable to archivists in managing their collections today and into the future.

G. Lack of standards

The current lack of standards for preservation affects our community in many ways to a great extent as both practitioners and clients. There are almost no preservation oriented standards. A client that sends a collection of media to a vendor to perform reformatting has only input format, output format and bottom line cost to use as points of definition. There is no consensus from lab to lab on "standard practice". Each lab uses different methods, tools and practices. This causes many problems. One is that it generally makes price point the only deciding factor. With a lack of standards this generally means a difference in approach. When all else is for the most part equal cheaper generally means less. Less quality control, less expertise, less quality equipment, etc… Standards that exist for and focus on preservation need to be developed so that clients have a reference to request vendors to conform to. As with any good standard they should focus on principles and avoid reductionism as an approach where possible.

Outside of cost factors the consequence of lack of standards is still severe. A fundamental of preservation is consistency. Without standards consistency is practically unattainable. Standards promote multiple aspects of the preservation focus including transparency, adoption/saturation, integrity and stability.

H. Lack of open and/or protected disclosure of standards/technology

The greater the complexity of a format, the higher the chance of more rapid obsolescence due to the knowledge base that must exist to support it. This includes both professional support as well as the consumer base. There is this environment that surrounds every format. The more complex the format the greater the chance that access to the content in the format will be inhibited. This problem is greatly amplified by proprietary technologies. There is a strong economic incentive for companies to withhold documentation on their proprietary format. If and when the company collapses these types of information are almost always buried in the chaos of a company in transition. The information may even be bought by a company who will never use the information, but nonetheless

wants to keep it secret to protect the potential value of one of their assets. Under these circumstances the demise of the format information is almost guaranteed due to massive loss of collective memory at a comprehensive level. Even if there comes a point at which there is no longer an economic interest in the information the loss is too great to recover from. It may be possible to reverse engineer the technology but there will almost never be a business case good enough to justify the resources required to perform such a task.

This is one of the reasons for the need to develop and use standards, open source software and to request some for-profit companies to place their documentation in escrow. Definitely good steps in the right direction of mitigating risk and increasing transparency. It is clear to see the role and relationship that transparency has to obsolescence and how general complexity of a format dictates ease of access.

I. Copyright and rights/royalties issues restricting access to content. Fear of litigation on such matters causing a state of paralysis.

While many of my colleagues are much better suited to discuss this topic than I am, as a "layman" in the world of copyright I have seen a scenario repeated over and over again that presents an obstacle to preservation. This is fear of litigation over preservation and access projects. Inherent in performing preservation is the building a business case and justifying the cost. The primary avenue for many archives to do this is through use of the content that they are preserving. Without anything but the most exact understanding of the rights associated with the content archives will hold back from using the content to generate revenue and projects go undone or uncompleted. Even when access to the content is provided free of charge this fear prevails leaving the content to ultimately languish and remain inaccessible. There needs to be some path that an archive can take in the absence of total clarity that protects them as well as offers some safeguard to the copyright holder that covers the number of ways that the scenario may play out.

J. Ultimately lack of funding

As is true with many issues the bottom line is funding. There is a significant need for funding the development of tools and resources. Historically funding has gone towards preservation of specific collections as opposed to the development of an overarching infrastructure, resources and tools. We have seen this shift to some extent. Projects such as NDIIPP have worked toward developing infrastructure. As previously stated, Mr. Kolb of NEH recently remarked that the number of R&D grant proposals has increased dramatically over the years, although most unfortunately many remain unfunded due to drawing from the same funding source which has been reduced over the past years.

Our position is succinctly positioned using the old proverb "Give a man a fish and he eats for a day. Teach a man to fish and he eats for a lifetime". We have done very little teaching. In most cases the return on investment is in orders of magnitude greater in the funding of community based infrastructure and programs than with isolated projects to preserve specific collections. In order to do this we need more funding and a broader allocation than currently exists.

This distinction between funding technologies and tools vs. projects is an important one. Traditionally it appears as if the community assumes that development of tools and technologies may come from commercial interests. Moving Image and Sound Preservation will not gain commercial interest without standardization and validation as a field. Without standards it becomes difficult to both define and validate the existence and size of the community being served. The field is seen as "niche" and scattered. Without the ability to quantify the community there is a lack of interest in commercially funded ventures including book publishing and creation of other resources as well as development of technologies. Without funding from private commercial ventures to support advancement the community is only left to grant funding to come up with these resources and technologies. This funding alone is not adequate even with the return on investment. Standardization and positioning of the field as a valid professional field are important factors in bringing about funding for further progression of the field.

III. Defining the Need and Proposed Solutions

A. Defining the Need

First I would like to define preservation using a quote from Ray Edmonson -

"preservation is the totality of things necessary to ensure the permanent accessibility – forever – of an audiovisual document with the maximum integrity"[1]

Next I would like to define the activities required in fulfilling preservation by referencing the Open Archival Information System model. OAIS tells us that the activities of a preservation oriented archive consist of the following:

"Ingest, Store, Manage, Maintain, Disseminate" [2]

[1] Edmonson, Ray "Audiovisual Archiving: Philosophy and Principles", United Nations Educational, Scientific and Cultural Organization, Paris, 2004

[2] "Reference Model for an Open Archival Information System (OAIS)" CCSDS 650.0-B-1, BLUE BOOK, Washington, D.C., January 2002

Placing the traditional physical archive model under this lens exposes the fact that it is a flawed model. The traditional archive should by no means be our model point of reference moving forward.

With digital we are granted tools to overcome many of the traditional obstacles. We are given tools that we have never had that allow us to perform all of the functions listed within OAIS with much greater efficiency and effectiveness. However, on the flip side of the equation we are faced with new extreme challenges that are best summed up by a quote from Howard Besser where he states the following;

"In the analog world, previous formats persisted over time. Cuneiform tablets, papyrus, and books all exist until someone or something (fires, earthquakes) takes action to destroy them. But the default for digital information is not to survive unless someone takes conscious action to make them persist."[3]

Our traditional flawed physical model did not bring total loss regardless of our inability to perform preservation activities because it persisted by default. Our digital collections in contrast will languish by default. The prospect of total loss is easily foreseeable. As a practitioner working with archives I see many of the faults carried over into the digital realm including, storing low cost external hard drives on shelves as a preservation strategy, poor metadata, no data integrity measures, etc… We are granted tools in the digital domain to perform these functions with a great deal of ease, but along with increased capability comes a much greater burden to fulfill the true archival needs as well.

B. Top Down Solutions

It is always good to approach issues using both "top down" and "bottoms up" approaches. My experience plants me much more firmly in the "bottoms up" camp. My comments on top down approaches would revolve around enabling avenues for funding and business models to support preservation. The benefits are clear. Access creates interest and awareness, which in turn creates potential for revenue and funding. Enabling access to collections, allowing generation of revenue for preservation and offering some reasonable safety mechanisms from litigation, while easier said than done would be of great benefit to all parties involved in and with the content. We can not expect that archives can survive in this manner solely on government grants and private funding.

[3] Besser, Howard "Digital Longevity" in Sitts, Maxine, ed. *Handbook for Digital Projects: A Management Tool for Preservation and Access,* pp. 156 -166, Northeast Document Conservation Center, Andover MA, 2000.

We also need extensive advocacy efforts to raise awareness of preservation issues at high levels within other fields as well as government and commercial sectors. Broader awareness and interest will help lead to funding, collaboration and standardization.

C. ***Bottoms up Solutions****: Approaching funding and workload on three fronts with a focus on PRESERVATION.*

As a bottoms up approach there are three fronts where I see we can make the greatest impact and go a great distance in meeting the top down approach at a high level. Additional funding and the right allocation of existing funding have the potential of yielding great long term benefits by investing in the following three areas.

1. Technology/R&D

For too long we have been limping along as a community adopting and "rigging" solutions to our needs. The audiovisual preservation community has been grass roots in nature forging ahead with great passion. This is admirable and has served the community to a great extent. It is time though that we elevate the field to the professional field that it has evolved into. We need real funding, real tools and real resources to perform the work we are charged with performing.

We need development of diagnostic tools for increasing accuracy and enabling better assessment and prioritization as well as tools and resources for increasing efficiency. Current assessment and prioritization efforts are for the most part general and reactive. Efforts at developing a quick and accurate tool for detecting degradation of media have yet to yield meaningful results. This is an area of major need. Without this we can not truly manage our collections. We also need tools for increasing efficiency. These would consist of tools for identification and preparation of media, quality control, metadata management and reformatting.

We also need to see preservation oriented standards emerging from standards forming bodies. Consistency is both a friend of preservation and commercial interest. Standardizing takes what is usually considered "too niche" of a market and fills out the user base to a number that is more attractive to prospective business ventures interested in serving the preservation community. Standards also help to validate the field as a professional field that deserves the attention of the market place and of other fields.

We should be collaborating with and bringing in other fields of expertise including physics, chemistry and material sciences and looking at prospects for technology-transfer. Our needs are broad. To be insular is to ignore the true needs of our archives.

Technology development, standards creation and collaboration and technology transfer from other fields will bring great growth to the field. This is only part of the equation.

2. Education

Education is just as significant of an issue as technology and R&D. While high efficiency reformatting and new technologies are required to overcome the challenges we face we must be aware of their implications. Both of these advances, in an effort to reduce the need for expertise and

increase efficiency create a further distance from expertise regarding the technologies which they address. When tools are created that reduce the need for expertise, people who have performed these tasks in the past fall out of practice. Their expertise is ushered into obsolescence. Without thorough documentation and dissemination of information on the expertise involved we stand the risk of growing further separated from the fundamental practices and technologies required to reproduce our content. Education serves as a counter to obsolescence of expertise.

Education for audiovisual preservation involves a new skill-set. These materials are different from traditional materials. Our object of preservation is the signal that is output from the audiovisual system. The traditional object of preservation is immediately available to the viewer. Meaningful assessment and prioritization of audiovisual collections is dependent upon use of a properly functioning system that grants access to the whole of the object (media and content). As a rough example let's draw a parallel between a painting and audiovisual object. With a painting the painting is the object of preservation. The canvas or wood is the carrier and is an integral part of the artwork, but if it could be removed without affecting the painting there would arguably be no loss. It would make factors such as authenticity and materials testing research a bit more difficult, but the mass appeal appreciation of the piece would remain intact. It is the same with media serving as the carrier for content, where the media is the canvas and the painting is the content.

In the past condition assessment a painting and an audiovisual piece of media by an archivist would not be all that different. One would look at that item, handling it to some extent to look for damage of any kind, funny smells, note material types and storage conditions and make a determination. What is the difference between these two items? In the case of the painting we have made an assessment on its condition with the object of preservation in full sight. We have exercised the functionality of its exhibition with use of the light in the room reflecting off of the painted canvas into our eyes to determine the condition of its presence. With the audio/video tape we have only looked at the carrier. We have exercised only an amazingly small fraction of the functionality required to determine the condition of the object of preservation. Therefore we need to look at how we can exercise an equivalent level of functionality with the audiovisual object (content and media) as with the painting.

I have assigned the terms "static" to items which fall into the realm of the painting. These are items in which the components required to assess the condition of the object of preservation are readily available. Even film could potentially fall into the static domain because of the user's ability to access the information stored on the film base with little more than the same components in assessing the condition of a painting. The validity of

this methodology could arguably be deemed inappropriate, but the point is made about the distance of access between a film image and a video image. For objects such as audio and video tape I have assigned the term "dynamic". These are objects which require the compiling and coordination of a system of components that are not readily available in the natural world in order to assess the condition of the object of preservation. Dynamic objects are inherently more complex in that they not only require the compiling of system components, but more importantly depend on the proper functioning (relationships of system components, including the tape and operator) of all the components including the audio or video media in order to produce an end product that has integrity and is a faithful reproduction of the original.

As research and development on causal relationships advances tools and technology will evolve that will make the effort much less arduous. Until then a dynamic object still must be assessed as such if one is interested in attaining meaningful information. Meeting this task entails evaluation of the media and signal in a calibrated environment. All of these aspects inform us that the currently emerging moving image and sound preservation programs are required. Outside of academic institutions a great deal of training and education needs to be promoted in a variety of ways. Initiatives such as AMIA sponsored conferences and workshops and the MIC website offer a helping hand by providing relevant information to those concerned with preservation, but these alone are not enough. We need education in audio/video engineering programs, on-site training and regional workshops. We need curriculums and texts that can be common to all of these efforts and serve as a community wide reference. Similar to the way that one can attend multiple Physics 101 classes and see the same well structured, well documented examples and references.

In the past there has been a large gap between theory and practice in the field of audiovisual preservation. There has been both a certainty that audiovisual archivists should have hands on interaction with their audiovisual media and a looming unknowing as to what degree was appropriate for an archivist. A primary charge of audiovisual preservation training should be to fill this gap and help offer a toolset to the archivist who was previously without adequate tools. Enabling this knowledge democratizes the process of audiovisual preservation and also gives monetary relief by offloading appropriate tasks from an engineer or technician to the archivist. As well, the whole is greater than the sum of the parts. The ability of the archivist to adequately assess their collection brings about greater capability for fund raising, more meaningful vendor pricing and communication, greater quality control tools and can even greatly aid processes such as high efficiency reformatting.

3. Resource sharing

As I have pointed out throughout this document I believe that significant funding should be allocated toward infrastructure and tool development. Even if the pool of money remains the same size I feel the return on investment and cost/benefit to be ultimately more beneficial than addressing specific collections. There is perhaps a short term sacrifice for a long term gain.

I believe that a primary focus of infrastructure development should be the development of regional centers. These are regionally located facilities that pool regional resources to support all of the activities proposed in this document including R&D, education, reformatting, media storage, data storage, equipment storage and to act as a general hub for preservation oriented activities.

This is not a new concept, but has yet to be realized. I suspect due to the complexity of implementation and the business model. Though most certainly we face much greater challenges.

Other proposed efforts focused on resource sharing include a national equipment registry to identify the national equipment holdings, particularly equipment that is obsolete; the MIC union catalog which approaches this from the opposite direction by ensuring that efforts are not duplicated by

IV. Summary

Clearly there is no simple answer to the large and complex issues we face. However there are some fundamental steps that we can take to advance our cause. These include, creation of resources and tools, documentation of equipment and expertise, standards creation, education and training, external collaboration and technology transfer, and pooling of resources. It could not be any truer to say that time is of the essence on every front. As a community we have gone under-resourced for too long. It is imperative that we act now or risk failure and massive loss of content. With our long standing issues of the physical domain falling away from us and the new issues of the digital domain racing ahead of us we are in a particularly vulnerable time. There has not been a more prudent time than now to step up as the professional community that we have evolved into and rise to the challenges facing us. It is our passion and calling as well as our duty and our obligation.