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Preservation in Disaster Situations: a case study of the Valvilla Wool Mill Museum, Finland

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Abstract
This article discusses the role of documentation and rescue planning in minimizing collection damages in disaster situations. The topic is surveyed through a case study of a fire that occurred in 2003 at the Valvilla Wool Mill museum in Hyvinkää, in Southern Finland. This incident caused significant damage to the authenticity and integrity of the museum's archival collection. Both the fire and the extinguishing of the fire caused severe damage to items in the archival collection. Deterioration continued during aftercare, causing serious secondary collection damage because the methods of the first aid and aftercare were spontaneously planned and applied. By using the Valvilla Wool Mill museum's incident as an illustrative case study, the article analyses how the documentation and rescue planning influenced collection damage and demonstrates the kinds of effects rescue work can have on the authenticity and integrity of cultural heritage items.

1. Introduction

Since the author of this article has not been directly involved with the disaster response, or aftercare processes during or after the fire, this article is based on the interview information that the author performed to the Valvilla Wool Mill museum's employees. Two of these employees took part in the water damaged collections disaster response and collection recovery work. One of the interviewees had done remedial conservation work for the collection since 2005. The interview was done in 2009 in the context of the author's PhD research.

Beyond the interviews, more detailed information about the fire and the actual disaster response process was found in the Hyvinkää District Court's judgment documents. Detailed information over the collection's damages after the fire and the collection recovery was documented by textile conservator Anu Kasnio and paper conservator Sara Lindberg in their condition report and conservation plan that was given to the city of Hyvinkää in June 2004.

2. Preservation of Cultural Heritage

The need for history preservation and to keep some parts of the traditional environments unchanged started in the 19th century [1]. There are two central criteria that are used in the evaluation of cultural heritage. These criteria are defined in UNESCO's World Heritage Convention (WHC) as integrity and authenticity. Integrity is used in measuring "the wholeness and intactness" of cultural heritage [2] and it has been defined as cultural heritage's continuing significance over time [3]. Authenticity is defined in societies through comprehensive cultures and cultural identities [4] and it is analysed through cultural heritage's verisimilitude [5].

Conservation's objective is to safeguard cultural heritage [6]. Preservation aims to prevent or retard deterioration or damage in cultural heritage by controlling its environment or their structure in order to maintain cultural heritage as unchanged as possible [7]. Conservation uses all measures and actions to ensure the accessibility of cultural heritage in present and future times [8]. Conservation treatments target future, current, and past deterioration. These treatments that can be applied to only one object or groups of objects that influence cultural heritage materials and structures both directly and indirectly. Although all changes on cultural heritage are visible, conservation treatments are often evaluated through visual aspects on the basis of whether or not these treatments can be seen on the conserved object [9].

Theory of modern conservation includes preventive conservation, remedial conservation, and restoration into the used treatments in heritage preservation. All measures and actions used in conservation should respect physical properties of cultural heritage [8]. Preventive conservation actions operate in the context or surroundings of cultural heritage. The measures and actions of preventive conservation are indirect and they operate on cultural heritage's surrounding parameters that influence the preservation process of cultural heritage. Preventive conservation treatments do not directly interfere cultural heritage structurally or materially, nor modify their appearance. Remedial conservation actions are all directly carried out on an object or group of objects. Remedial conservation actions should be carried out when objects are so fragile and

deteriorated that they could be lost in a relatively short time without the treatments because these actions may modify the appearance of conserved object [8].

Climatological issues are central in the preservation of cultural heritage. Climatological questions have significant part in preventing secondary collection damages such as moulding in water damaged collections' recovery and collection after-care process. Microbiological attacks in indoor environments are related to the temperature and relative humidity [10]. Mary-Lou E. Florian [11] introduced the idea that fungal filaments absorb water from the materials that they use as breeding ground and not from the air. Therefore, the best parameter for the risk evaluation of fungal damage is the material's water content which is influenced by the relative humidity (RH) and the materials' physical and chemical characteristics [11].

According to Lars Christoffersen [12] different room temperatures and air pressures influence the air's ability to bind moisture. High relative humidity is the most important parameter that nourishes the growth of mold. When the absolute amount of humidity is reduced form the storage air, the risk for mold damage can be minimized. Therefore, storage room-air's drying and dehumidifying is an important part of the drying process of storage's water damaged collections. Usually, there is no active mold growth when the relative humidity is under 65%; when the relative humidity is between 65-75%, the growth of mold may start and at 75-100%, the conditions are ideal for intense and fast mold growth [12]. Drying the room-air could, therefore, be used to fasten the water damaged materials drying and diminish the active growth of the most common mold species. High humidity in items also promotes chemical degradation. Thus, the degradation process may be slowed down if the relative humidity is kept below 65% [12].

The recovery process of water damaged material includes preliminary storage and treatments, de-humidification of wet items and cleaning of dried items. The initial storage may be done at the accident site or at another site in cold storage or freezing facilities. Methods of drying may involve air flow, dehumidification, heat that is less than 37 °C and freeze-drying [11]. Lars Christoffersen presents the idea that the most important deteriorative element in temperature and relative humidity changes is the speed of those changes [12]. When the relative humidity in a room is increasing dramatically, climate balancing becomes very challenging. If the temperature is raised rapidly, it influences items both chemically and mechanically by intensifying the chemical degradation process and causing tensions in the mechanical construction of items. A high temperature has also an activating role in the growth of fungal filament [12]. This indicates that in order to prevent secondary damages, such as fungal filaments growth in water-damaged collections, the use of cold storage and freezing facilities in initial storage is a very important part of the recovery process. Also, fast and dramatic changes in room climate should be avoided. Adjustments of both the room temperature and the relative humidity should be made smoothly and gradually also in the disaster recovery situations.

3. The Valvilla Wool Mill Museum and Its Archival Collection

Wool Mill Ltd., later known as Valvilla Wool Mill, was founded in 1892 in the city of Hyvinkää by Finnish manufacturer and engineer Mr. Ossian Donner [13]. The outlook of the industry in the 1890s in Finland was good [14] and the establishment of the Wool Mill (Figure 1) began Hyvinkää's development into an industrial community. At first, the Wool Mill was a spinning mill but through the factory's 100-year history, it grew into one of Finland's largest and most diverse wool mill in production [13]. The factory also influenced the growth of Hyvinkää [15].

The Valvilla Wool Mill Ltd. established a museum in 1981 when traditional textile manufacturing was ending in Hyvinkää. After that year, the company still operated in Hyvinkää as a spinning mill and threads were spun in the factory halls until 1991. The Wool Mill museum's objective was to preserve the factory's history and cultural heritage after the operational changes. The museum was organized by Nils Grandell and Esko Talanterä, engineers employed by the Valvilla Wool Mill Ltd [15].

Finland underwent a severe economic depression between 1990 and 1993. The Wool Mill closed down in the early 1990s and the company donated both the museum and its entire collection to the city of Hyvinkää. The museum's collections were not originally documented by museum professionals and, when the museum was donated, the archival collection was not properly documented. All context information concerning the archival collection was known only by the employees who had organized and taken care of the museum [16].

Before the Valvilla Wool Mill's museum could be donated to the city of Hyvinkää, a volunteer museum professional from the Hyvinkää Heritage Association performed archival collection's pre-documentation with the help of a former employee of the Wool Mill. The archive's pre-documentation was done with precision, shelf by shelf. This meant that every archive shelves document folders content themes were listed, but more precise information over individual documents and document folders content was not listed. The pre-documentation lists were also attached directly on the archive shelves. Information about the archival collection's content was written directly to the original textile sample books, archive boxes, and document folders and this information only existed written down in these archive boxes and document folders [17]. At first, the city of Hyvinkää kept the museum open for researchers only. Since extra funding for the documentation of the archival collections could not be found, the collection stayed at the predocumented level until the accident occurred [16].

Before the year 2003 and the fire, no funding was given for the proper documentation of the archival collection which contained 110 shelf meters of archival documents. The archival collection consisted of three parts: a) the collection of textile sample notebooks; b) historical paper archives; and c) separate archival documents that all contained documents pertaining to the entire history of the Valvilla Wool Mill Ltd. and its production in Hyvinkää [16]. Table I defines the archival collection's content more thoroughly [16, 17].

Table I. The Valvilla Wool Mill museum's archival collection's content [16, 17].

Document Type	Information Content	Number of Documents	Number of archive Boxes

Textile sample notebooks: 21 different series	Covers information about the Wool Mill's entire textile production form 1890s until 1980s	1488 notebooks that contained approximately 84 000 textile samples 507 textile fabric and thread maps	176 archive boxes of textile cards, which contained textile cards with fabric samples and manufacturing information
Historical paper archives: three types of archival material	Material that revealed the history and development of the Wool Mill Ltd. between 1890's and 1990's	270 bound documents contained business meetings records, cashbooks, and account books historical paper archives included 200 textile industry- and textile manufacturing-related books	separate documents, approximately 200,000 stored in archive boxes, binders, and open folders that were placed inside envelopes
Separate archival documents	Material that revealed the history and development of the Wool Mill Ltd: half of the material dated before year 1950 and the rest between 1950's and 1980's	Visual and audiovisual documents: 1. 500 photos, 2. five movies, 3. 12 voice recordings, 4. about 50 advertisements	about 800 boxes of separate archival documents, which all contained approximately 200 documents that contained: 1. operational manuals for weaving machines 2. warping instructions 3. construction drawings for the wool mill building 4. mechanical drawings of textile machines

4. Fire in the Museum's Archival Storage

In 2003, the factory hall below the Valvilla Wool Mill museum's archival storeroom was rented to a small company that manufactured components for the Finnish industry [16]. On September 25th in 2003, the company carried out metal construction demolition work. While an employee was using a flame cutter, neglecting standard regulations, on a stand near the old factory hall's wood panel ceiling, fire broke out and spread to the archival storeroom [18]. When the employee noticed that there was a heated glow in the wood panel ceiling, he stopped the flame cutting and tried to extinguish the fire with the production hall's fire extinguisher, but it was apparently broken and could not be used [18].

The old factory building's ceiling construction was not very tight and it had gaps in some places between the wood panels. According to the fire investigators, the heat produced by the flame cutting and a welding spark that had gone through one of these gaps started the fire in the production hall's multilayer ceiling [18]. The fire proceeded into the museum's archival storeroom on the second floor [16].

Even though the Wool Mill's sprinklers dated from the early 1900s, they alerted the fire department and started to extinguish the fire with water. The firemen arrived at the site approximately 5 minutes after the alarm. When the fire source had been spotted to the second floor archival storeroom, fire department opened the building's roof to shut down the fire with water. The firemen evacuated archival material that the museum curator guided them to rescue as the most valuable part of the collection from the archival storeroom to the building's roof (Figure 2) [16].

The wool mill's old sprinklers slowed down the fire's progression and prevented the total burning and destruction of the museum's archival collection. However, the sprinklers and use of water to extinguish the fire ensured that the entire archive was wet after the fire. Fortunately, some important parts of the museum's archival collection had been temporarily placed in the museum's office and, therefore, were not damaged [16].

After the fire was extinguished, a private logistic company packed and moved the damaged archival materials into an undamaged production hall of the factory building. Because the city of Hyvinkää owned the entire Valvilla Wool Mill building, it could provide a free production hall for the aftercare process. Unfortunately, the standard packing boxes used in moving were made of plastic and were unventilated which prevented the water from draining out from the packing boxes [16].

Figure 1 (left). The Valvilla Wool Mill area in 2012. Photo: Pentti Halenius, 2012.
Figure 2 (right). Archival documents that were evacuated from the archival storeroom to the Valvilla Wool Mill's roof during the extinguishing of the fire. Photo: Hyvinkää City Museum, 2003.

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5. Archival Collection First Aid and Aftercare

When the accident happened there was no rescue plan for the museum's archival collections and no aftercare plan for fire and water damage situations. Because the rescue work was not planned, there were no material resources ready or plans for rapidly getting a large group of museum professionals into the rescue work after the disaster [17]. All rescue plans concentrated on people's safety and the well-being of the building. Collection safety issues were not considered. Also, there were no material resources or museum professional networks ready in Finland for this sort of post-catastrophe aftercare [16].

The disaster response and the archival collection's recovery were very challenging and the process continued nearly for two weeks. The number of totally wet archival material was large (110 meters of archive shelf) and it was known by the Valvilla Wool Mill museum's employees that if the damaged collections were not dried or frozen within three days the collection would mold. All archival documents had both fire and water damages, but the archive library section

where the fire had started was badly burned [17]. There were no existing possibilities at that time to arrange immediate large-scale freezing and freeze-drying facilities for large quantity of water damaged archival or museum collections in Finland. Also, freezing and freeze-drying methods in water-damaged collection aftercare were not so familiar methods in Finland because there had never been such large-scale water damages in Finnish museums or archives. Therefore, freeze-drying methods were not applied in the recovery of the museum archival collection [16].

The Valvilla Wool Mill museum and its employees were well connected with the local non-governmental organizations and museum professionals who were willing to help. The Valvilla Wool Mill museum's employees managed to get help from a couple of paper conservators who voluntarily planned the aftercare methods with the resources that could be provided rapidly and at minimum cost. Also, the decision-making organization of the city of Hyvinkää was not prepared for this type of disaster or to provide large investments for collection rescue work at the fast rate that would have been needed in order to minimize secondary collection damage [16].

The two professionals who were employed in the museum worked long hours for several weeks to get the archival material dry and to prevent the total loss of the collection [17]. There were also several local voluntary organizations in Hyvinkää that participated in the drying of the wet archival material. Some of the organizations worked for a weekend and others for several days. The city of Hyvinkää also funded a group of local unemployed people to work for the museum during the collection's drying process [16].

The lack of disaster planning meant that the disaster response and the collection recovery were done in shock and using short-notice planning with the available economic and material resources. Unfortunately, the use of minimal economic and material resources in the disaster response and collection recovery caused expansive growth of secondary collection damage such as moulding [16, 17]. In retrospect, it is possible to say that freezing and controlled freeze-drying and air-drying of smaller collection parts separately could have prevented most of the secondary collection damages. For audio-visual materials, instant air-drying would have probably been the most useful solution in all cases.

Since the archival collections had not been previously documented, the rescue work could not be prioritized at the level of individual documents and collection parts by their cultural and historical value. After the accident, the collection items had to be spontaneously prioritized through the overall condition and level of damage of individual items [17]. The prioritization was performed with a preliminary view of the collection's most historically significant parts. The textile sample notebooks were given top priority in the aftercare, being the main goal to preserve their information content. Because the air-drying used in the aftercare was not very effective and the note-books were very thick, the original leather covers were cut off to improve the drying efficiency of the textile samples and paper material in the books. The objective was to prevent secondary damage such as molding, but the drying method was not effective enough to prevent this [16].

During air-drying, the textile sample notebooks were placed open on large tables and on the floor in vertical position. Book shelves were protected with dust jacket. Drying papers (makulatur paper and wastepaper) that held the book pages open were placed between book pages (Figure 3). Large fans were used in the drying process. More localized drying of individual notebooks was done with hand dryers [16, 17].

Unfortunately, this type of air-drying was not optimal for the notebooks drying. The textile samples were fastened to the book pages with water-soluble glue which, in some cases, caused that the fans' airflow to blow the textile samples from their original places in the book pages [16]. This was even more unfortunate because those textile samples lost their linkage to their context information since this information existed only in the original notebook pages and in the badly damaged book covers that were already cut off in order to improve the air-drying process [17].

6. Secondary Collection Damages

The following description of the collection secondary damages are based the interview to both the museum employees' [16] and the collection condition report [17] which was given to the city of Hyvinkää in June 2004. Since there were not enough museum professionals working on the first aid process and collection recovery during the first weeks, some wet archival material stayed wet and could not be saved. This material was completely destroyed by mold and water that stuck the pages tightly together.

Most parts of the collection were saved but these items had significant secondary damage. The fire had also caused soot and burn damage (Figure 4). The water had, for example, rinsed the color of both the writing ink and textile samples onto the notebook pages. Also, the collection logistical moves during the rescue and the aftercare caused mechanical damage such as tears in pages. A large part of the collection had mold damage. The only archival documents that were undamaged after the fire were those that had been placed temporarily in the museum office before the fire [16].

After the first five-week period of the collection recovery, the city employed a textile conservator and, two months later, a paper conservator to perform condition evaluation of the museum's damaged archival collection, objective was to develop a conservation plan (Figure 5) [16]. Two months after the fire, the collection was moved from the production hall where its recovery was performed in a new archival storeroom that had been renovated. The textile conservator started the textile sample notebook's condition evaluation and reporting in December 2003. The paper conservator started the paper archive condition evaluation in January 2004 [17].

From left to right:

Figure 3. Textile sample notebooks air-drying during the first aid and aftercare process. Photo: Hyvinkää City Museum, 2003.
Figure 4. Soot and burn damage caused by the fire. Photo: Hyvinkää City Museum, 2003.
Figure 5. Textile sample's condition evaluation in Nowember 2003. Photo: Hyvinkää City Museum, 2003.

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The collection's condition before the fire is not known [16]. The first condition evaluation was done for the collection after the fire and the evaluation was divided into five different condition categories: excellent (1), good (2), fair (3), poor (4) and extremely poor (5). Table II describes the archival collection damages, overall condition and conservation needs after the disaster [17].

Strong changes in relative humidity and temperature had caused permanent damage to the archival material [16]. The largest nine textile sample notebooks did not dry fast enough and their book covers, bindings, pages, and textile samples were already molding in October 2003 [16]. The pages were photographed and the textile samples were removed from the pages. Textile samples were packed for future conservation treatments. After this, the original book pages and the book covers were destroyed due to the mold damages. Also, the most molded textile samples were removed from the collection. During the condition evaluation, 708 molded textile samples were destroyed. The backgrounds and the argumentations of this decision are not clear [17].

Table II. Archival collection damages, overall condition and conservation needs after the disaster.

Document Type	Collection Damages	Overall Condition	Need for Conservation
Textile sample notebooks: 21 different series	- Water and fire based damages; - Dropping of textile samples from notebook pages; - Book covers and bindings partly deformed or twisted, pages were swelling; - Pages were swelling; the material had tears, burn damage, and soot damage which were exacerbated by water damage; - Running color, textile samples stained notebook pages; - Mold damages; - Nine largest textile sample notebooks: book covers, bindings, pages, and textile samples moulded	About 67% of the textile sample were in poor or extremely poor condition About 33% of the documents were in good or fair condition	Damaged notebooks needed conservation treatments
Historical paper archives: three types of archival material	- Water and fire based damages; - Bound manuscripts: burn damage, book covers had been cut off; - Physical damages: deformation and twisting; - Pages were swelling; the material had tears, burn damage, and soot damage which were exacerbated by water damage; - Hardening into stone like concrete; - Mold damages; - Stapled documents had rust damage	About 67% of the paper archives in poor or extremely poor condition About 20% of the manuscripts had significant physical damage	Need for Conservation
Separate archival documents	- Water and fire based damages; - Pages were swelling; the material had tears, burn damage, and soot damage which were exacerbated by water damage; - Stapled documents had rust damage	Almost 60-70% of the separate archival documents: were in poor condition The audiovisual and picture material was in extremely poor condition	About 58% of the audio-visual material needed instant conservation Rest of the material needed at least surface cleaning and new storage material

7. Conservation of the Archival Collection

The conservation plan concentrated on the remedial conservation of the damaged archival materials. There was no mass conservation treatments designed or applied for the collection's conservation. The goal of the conservation treatment was to stop the deterioration process of the original materials and to improve the overall condition of the collection [16, 17].

The conservation plan concentrated on preserving the information content of the archival collection. The primary objective was to conserve the collection so that its information content was preserved and the material could be handled and researched safely. The most important information content was seen in the individual textile samples and in their context information [16]. The original objects, such as the textile sample notebooks, were not the primary focus of the conservation work. Written description information from the extremely dirty textile sample notebook pages were moved onto new cardboard sheets. The dirty textile samples were cleaned and washed and the moldy textile samples disinfected [17].

When the condition evaluation started in December 2003, two museum assistants also started to perform the easier remedial conservation treatments on the less damaged archival material [17]. The collection's conservation has been carried out using this conservation plan for five years and the work was still ongoing in 2009 when the museum employees were interviewed about the accident [16].

8. Discussion

In the early 2000s in Finland, the public buildings risk evaluation and risk management work concentrated mainly on the security of people, not on protection of valuable cultural heritage. The decision to save money just after the fire and during the first weeks of the disaster

response and collection recovery meant that the collection's damaging continued for several weeks after the disaster. The collection recovery method that was chosen, air-drying of entire wet archival collection at once, was one of the main factors that lead to the large-scale secondary damage. Ineffective first aid methods were employed due to lack of disaster planning and economical resources. These circumstances resulted more permanent and serious collection damages and expanded the need for further collection aftercare and remedial conservation in order to save the collection. Ironically, the attempt to save money just after the fire may have increased the overall cost of the collection's recovery because in the end the badly damaged collection has required many years of remedial conservation.

Used the air-drying method was not effective enough to dry the large archival collection. Because the entire aftercare was done in crisis without any previous planning or experience with such situations and with limited material and economic resources and without museum crises professionals' help, the secondary damage could not be avoided. Factors that could have increased the efficiency of the air-drying such as wind tunnels or blotting papers under the sample books were not used. Paper materials (maculatur paper, wastepaper and dust jacket) that were used in the drying process did not have very good ability to suction water from wet archival documents. Also, the dehumidifying process was not effective enough in the production hall where the air-drying was done. It is not possible to say how much these additional elements could have improved the drying process during the aftercare if they had been used in the proper way. It is also not known how museum professionals shock and lack of crises help have influenced the collection recovery work.

Contemporary conservation ethics support the idea of minimal intervention in conservation treatments, which means that the treatments should be done utilizing a minimalist approach. In the case of the Valvilla Wool Mill museum's archival collection, the objective was to preserve the collection's information content. Information content meant, in this case, individual textile samples of the notebooks and the written information that contextualized the textile samples into the Valvilla Mill's textile production. Plan-based minimal intervention treatments that could have included, freezing of archival materials and more controlled use of freeze-drying and air-drying could not be applied spontaneously in the collection recovery. Use of such plan-based disaster response and collection recovery methods would have required collection rescue planning, a large number of professional conservators, and material resources that could not be arranged for immediate use in this disaster situation.

Immediately after the fire, the two museum employees had great need for a group of museum professionals and conservators who could have helped them for a couple of weeks when the first aid and collection recovery started. The Valvilla Wool Mill museum's employees felt that they were left on their own to manage with "their museum disaster". The freezing and freeze-drying of the water-damaged collection was also discussed when it became obvious that the air-drying methods that were in use did not work as effectively as it was expected. This new option was eliminated since there were no resources available to provide the required number of freezer containers for this purpose. Also, the museum employees felt that, if the wet archival material was to be frozen, it would have required many years of freeze storing before the entire 110 shelf meters could have been freeze-dried or air-dried in smaller parts using more controlled and effective means of drying. At that time, there were only a few rather small sized freeze-drying facilities at the biggest museums in Finland because freeze-drying was mainly used for archeological materials conservation.

The Valvilla Wool Mill museum's archival collection was only not totally destroyed thanks to the museum employees who did everything they could to save the damaged collection. Also, many volunteers, including both museum professionals and common people, gave critically needed help in providing first aid. Without this help, the first aid would not have been possible in such emergency circumstances.

9. Conclusions

The Valvilla Wool Mill museum's archives fire shows how strongly collection documentation and disaster planning influence the outcome of the disaster response process and the collection's secondary deterioration in disaster situations. In the Valvilla Wool Mill museum incident, different deteriorative parameters simultaneously influenced the collection's deterioration process which made more difficult to apply mass conservation treatments for the deteriorated collections. It is also very hard to secure large cultural heritage collections through remedial conservation of individual objects because it requires both massive economic resources and conservation treatments that may raise hard ethical questions such as how well the document's integrity and authenticity is preserved and does these treatments influence on the possibilities to research and gain accurate information from these documents.

Although all aspects of conservation (preventive conservation, remedial conservation, and restoration) have their place in preservation process, the Valvilla Wool Mill Museum incident shows that preventive conservation and planned based mass conservation treatments in the disaster recovery and collection first aid stage may prevent severe and more complex secondary damages. It is also the most cost effective way to do collection recovery. This case shows that preventive conservation theory has much to give for the development work of collection recovery. In order to preserve the integrity of large cultural heritage collections in disaster situations, aftercare should be done using preventive conservation-influenced mass conservation treatments so that the need for remedial conservation actions could be avoided and/or minimized.

In the Valvilla Wool Mill Museum case all remedial conservation treatments performed directly to the archival collection documents have had influence on the archival document materials, mechanical construction and authenticity and integrity. Therefore, chosen conservation treatments also raise difficult questions over the treatment reversibility. In this case, conservation treatments are mainly irreversible. The chosen conservation treatment long term effects on the collection's preservation and re-treatability is unknown.

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