

## **Preserving the U.S. Government's White House Electronic Mail: Archival Challenges and Policy Implications**

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Sixth DELOS Workshop: Preserving Digital Information  
Lisbon, Portugal – June 19, 1998

### Introduction

This paper examines the archival and policy implications resulting from a decade of litigation over the creation, use, management, and preservation of electronic mail technology in the Executive Office of the President of the United States government from the mid-1980s onwards. While the context under examination is particularistic in many respects -- such as the applicable recordkeeping statutes and its political and organizational contexts -- it does speak substantively and powerfully to broader issues that any records management and/or archives program will need to confront as it struggles with digital information resources. Among others, this case surfaces concerns over the relationship between computing and continuing governmental accountability via recordkeeping, distinguishing official from unofficial records, distinguishing between different types of official records, evaluating the distinctive qualities between electronic records and their printed counterparts, the need to develop and implement electronic recordkeeping systems, assigning appropriate disposition schedules that ensure that records of continuing value are preserved while providing for the appropriate destruction of temporary records, and the detrimental impact to archival programs that attempt or are required to perform «salvage archiving» of computer generated data.

After a brief discussion of the introduction and use of electronic mail technology in the U.S. National Security Council (NSC), discussion turns to a description and analysis of the court case arising from a dispute over the propriety of the policies overseeing that use and of the archival preservation challenges it presented. This paper then closes with a series of policy and technology lessons applicable to other contexts.

### Electronic Mail Use and Management in the U.S. National Security Council: 1985-1989

In 1982, the U.S. National Security Council (NSC) installed an electronic mail (email) system on a pilot basis. In April 1985, email was made more widely available throughout the NSC using IBM's proprietary "Professional Office System" (PROFS). Later, other email systems would be introduced, including the VAX-based All-in-One package. The PROFS system allowed users to exchange email, transfer text documents, and share calendar information. PROFS email functionalities provided users with the ability to log on to the system and compose, transfer, display, receive, store, file, forward, print, and delete electronic messages. Backup tapes of all messages stored on the system were performed on a rotating nightly and weekly basis.<sup>1</sup>

The PROFS email produced by the White House's NSC gained wide public notoriety in late 1986 and throughout 1987 with the exposure and eventual investigation into the «Iran-Contra Affair,» an illegal initiative that sold arms to Iran to obtain the release of U.S. hostages and then used the profits from these sales to fund the U.S.-created Contra army in Nicaragua in its efforts to overthrow the Sandinista government. The PROFS system provided the primary communications conduit between the two key participants in this diversion scheme – NSC staffer Oliver L. North and his boss, National Security Advisor John M. Poindexter. In April 1985, Poindexter made it possible for North to send him email messages directly, bypassing the normal flow and filtering of email through the NSC's Executive Secretariat. It was through this unique email communications channel that North and Poindexter were able to secretly conduct their work related to Iran and Nicaragua.<sup>2</sup>

When the diversion of funds from the Iranian arms sales to the Contras became public in November 1986, both North and Poindexter began destroying documents, including email messages, associated with their role in the Affair. Right before they were to become the subjects of intense investigatory scrutiny, North deleted 736 email messages from his user storage area and Poindexter deleted an astounding 5,012 messages. Such deletions are all the more remarkable in light of the fact that each message had to be individually deleted. While the messages may have been deleted from the live system, they still existed on backup tapes that had been pulled aside by the White House Communications Agency (WHCA) which oversaw management of the PROFS system. These backup tapes and the existing live system provided three chronologically separate snapshots of the PROFS system immediately preceding and following the exposure of the scandal. By comparing the user storage areas for North and Poindexter across these three snapshots investigators were able to identify and examine those messages that North and Poindexter had deleted once the scandal became public and investigation was imminent.<sup>3</sup> These «recovered» PROFS messages became crucial evidence in the subsequent Congressional and other investigations into the scandal as well as the criminal trials of both North and Poindexter.

In the wake of initial investigation into the Iran-Contra Affair, the NSC adopted a formal policy for its email. It directed staff to store as little information as possible on the email system and to retain only those messages that would be needed for future reference. In the event that a staffer was «tasked for action» via an email message, they were directed to print the message out onto paper and incorporate it into the package they forwarded to their principals. The attitude towards email at this point was that it was merely designed to serve as a surrogate/substitute for «information that would be otherwise handled by phone.»<sup>4</sup> NSC staff were reminded that email usage was not intended to create official government records, nor was the system itself to be thought of as a formal recordkeeping system. In the odd event that an official record was created via email – if it had «enduring value, or if it documented agency functions and transactions» -- it was to be printed out onto paper and filed or its content was to be «memorialized» in a written memorandum or letter.<sup>5</sup> Staff had to be later admonished to keep the length of their email messages to a minimum and to create a typed formal memorandum instead of composing long and complex email messages (unless «time [was] truly of the essence.»)<sup>6</sup> During the preparation for the transition between the Reagan and Bush administrations in January 1989, White House employees were instructed to «take care» and review their computer data, including their email user storage areas to «ensure» that they had made «hard copy of all 'record' material....»<sup>7</sup>

After the initial Iran-Contra investigations in 1986 and 1987, the PROFS system receded back into obscurity. Given what it felt was a clear and sound policy for managing

email messages, the government had expected to erase all Reagan-era electronic versions of email messages stored on the PROFS system to free up disk space for the incoming Bush administration. The accidental discovery of this proposed erasure threw open the NSC's management of its email to public scrutiny and led to a decade long series of lawsuits that continue up to the present.

### A Decade in Court: The Impact of Technology on Recordkeeping Law and Practices, 1989-1998

In the waning days of the Reagan administration, the National Security Archive (NSA), a nonprofit research library of declassified U.S. government records, discovered informally by chance from an employee of the U.S. National Archives and Records Administration (NARA) that all non Iran-Contra-related email backup tapes would be erased and recycled and that the live email system would be purged to make room for the work of the incoming Bush administration. All of the Iran-Contra backup tapes uncovered during the initial investigation into the scandal were slated to be saved as evidence for other ongoing investigations. Upon receiving official confirmation that this in fact was the government's plan of action the NSA sought legal relief. NARA's position at the time was that anything of record significance would have been printed out and filed into a formal recordkeeping system, hence anything that remained electronically would have been either a redundant «convenience copy» or non-record material. In addition, since it was standard NARA practice to not accession any electronic records that had not been converted from a proprietary format into a hardware and software independent format and that all of the electronic versions of the email messages it had approved for erasure existed in proprietary email software packages, NARA was of the opinion that the erasure was clearly in line with both policy and law.<sup>8</sup>

In their initial legal action in January 1989, the NSA sought a Temporary Restraining Order (TRO) to prevent the government from moving forward with the proposed erasure that was to occur in less than 48 hours. In the NSA's opinion the government's argument that all official record material had been printed out and filed was not congruent with the recovery of North and Poindexter's electronic email messages from the backup tapes set aside by the White House Communications Agency (WHCA). There was no indication that any of the messages deleted by North and Poindexter had been printed out and filed into a recordkeeping system. Naming President Ronald Reagan, President-elect George Bush, the National Security Council, and the Archivist of the United States as co-defendants in their lawsuit, the NSA contended to a U.S. District Court judge on the eve of the presidential transition that the erasure would violate the Presidential Records Act (PRA),<sup>9</sup> the Disposal of Records Act (a component of the broader Federal Records Act (FRA)),<sup>10</sup> and the Administrative Procedures Act (APA).<sup>11</sup>

The PRA stipulates, in part, that the President «shall take such steps as may be necessary to ensure that the activities, deliberations, decisions, and policies that reflect the performance of his constitutional, statutory, or other official or ceremonial duties are adequately documented and maintained.» The PRA also directs that at the end of a President's term in office the Archivist of the United States «shall assume responsibility for the custody, control, and preservation of, and access to the presidential records of that President.» In order to dispose of any presidential records during his term in office, the PRA requires that the President obtain the views and approval of the Archivist of the United States. And upon the expiration of a presidential term of office when the Archivist has taken custody

of an administration's records, the Archivist can only appraise records for disposal once he/she has publicly announced the proposed destruction sixty days before it is to take place.<sup>12</sup> The FRA defines recordkeeping responsibilities for both federal agencies and NARA. The FRA requires the head of a federal agency «to make and preserve records containing adequate and proper documentation of the organization, functions, policies, decisions, procedures, and essential transactions of the agency and designed to furnish the information necessary to protect the legal and financial rights of the Government and of persons directly affected by the agencies activities.» In order to accomplish this the FRA directs federal agencies to «establish and maintain» a records management program which provides for «effective controls over the creation...and maintenance and use of records in the conduct of current business.»<sup>13</sup> The FRA directs the Archivist to provide «guidance and assistance to Federal agencies with respect to ensuring adequate and proper documentation of the policies and transactions of the Federal Government and ensuring proper records disposition.» It also requires the Archivist's approval for any agency records destruction.<sup>14</sup> The APA defines the scope of administrative rulemaking and decisionmaking in the executive branch of the government and also defines the parameters of judicial review of administrative decisions. It also makes it a violation of law for elected or appointed official to act in an arbitrary, negligent, or capricious manner.<sup>15</sup>

In their January 1989 complaint, the NSA requested that the court prevent the government from erasing the backup tapes and wiping existing messages from the White House's live email system.<sup>16</sup> The government countered that the NSA did not have a legal right to make the challenge they were proposing, that their action would «gravely impair» the Presidential transition, and that all that was occurring in this instance was the «removal of extraneous and unnecessary communications.»<sup>17</sup> After granting the NSA and the government an hour to make their best arguments, U.S. District Judge Barrington D. Parker granted the NSA's request for a TRO and assigned the case to U.S. District Judge Charles Richey.<sup>18</sup> Little did anyone involved at this point realize that this simple act would open up a decade long legal battle that has persisted to the present.

Remarkably, it took four full years of litigation before the court ruled on the adequacy of the defendants' recordkeeping guidelines and the Archivist's performance of his statutory obligations. In the interim the government argued that both their oral and written recordkeeping guidances amply demonstrated that their recordkeeping practices were in accord with the FRA. They pointed out that since 1987 the NSC had provided oral guidance to employees on their recordkeeping responsibilities both when they started working for the NSC and again when they departed. Employees were explicitly instructed that when an email message was a «record» it was to be printed out and logged into the formal paper recordkeeping system. They also pointed out that since February 1990, departing NSC employees were required to read and sign a certification that they had «met their recordkeeping obligations and [had] handled their electronic mail in accordance with the prescribed requirements.» In May 1992, the NSC modified the PROFS software so that when a user wanted to send a message they first had to assign a record status – presidential record, federal record, or non-record – before the system would route it. If a message was assigned the status of either «presidential record» or «federal record» a copy of it was automatically transmitted to the NSC's records management office for printing out and filing in to a recordkeeping system.<sup>19</sup> In their response to defendants' claims of proper behavior, the plaintiffs argued that the FRA required that all records, regardless of medium, had to be preserved unless NARA had first authorized their disposal. They claimed that in this instance the defendants had «arbitrarily» deemed email as non-records without first making any effort

to evaluate their content in order to justify such a determination, and that employees were not provided adequate guidance on how to identify a federal record generated by email system and how to distinguish record from non-record material. The plaintiffs also rejected the government's claims that the electronic versions of email messages were merely extra copies and not official government records. By declaring them to be extra copies and not records under the FRA, the plaintiffs contended that the defendants had «erroneously instructed» staff of their legally binding recordkeeping responsibilities. The plaintiffs asserted that electronic records were not extra copies because their «form and content are unique» and printouts did not necessarily capture all of the information associated with a particular document. Items such as the identity of the sender and the recipient, acknowledgement receipts which provide the sender with a confirmation that their message was received, as well as the date and time of receipt and system usage statistics such as a user logon/logoff and connect times were some of the types of electronically stored metadata that appeared nowhere on printouts. The plaintiffs further contended that the existence of a paper printout did not invalidate the record status of the electronic record version and that instead of being an extra copy the electronic version continued to be a record in its own right.<sup>20</sup> In a counter-reply, the defendants criticized the plaintiffs for asserting that the government was «somehow affirmatively obligated under existing law to do more than simply preserve 'records' contained on the PROFS system in hard copy paper format.» The government argued that the defendant agencies had consistently employed a «paper system as its primary means of maintaining agency files.» As such, the defendants had been totally within their legal discretion to not designate the PROFS system as a recordkeeping system for filing and managing records. They claimed that they had always treated PROFS as a communications system which sometimes was used to transmit records, but which for the most part communicated non-record material. Regarding the plaintiffs' contention that the electronic versions of PROFS materials contained information not available on the printouts, the defendants countered that when a PROFS note, calendar, or document is printed out the resulting paper copy contains, with the exception of function keys, all the information that had appeared on the user's computer screen. The defendants stated that they were «unaware of any authority...for the proposition that defendants [we]re obligated to do more...[T]here is certainly no requirement that individuals spell out abbreviations in their paper letters and memoranda, or track down the times of receipt of the documents they create[d] or note when acknowledgements in the form of return notes were received, all prior to 'archiving' such letters or memoranda in traditional agency files.»<sup>21</sup>

Taking into account all of the above arguments, U.S. District Judge Richey issued his ruling on the matter in January 1993. In brief, Judge Richey determined that the defendants had violated the FRA and that their recordkeeping practices were «arbitrary and capricious» under the Administrative Procedures Act (APA) because they permitted the improper destruction of federal records. He also ruled that the Archivist had failed to fulfill his statutory duties as mandated by the FRA and directed the Archivist to take immediate action to preserve the «electronic federal records» that had been the subject of the case and develop new guidelines for managing email. Richey specifically faulted the Archivist for not preventing the destruction of federal records. On the issue of the record status of the electronic versions of the email messages, Richey ruled that despite the fact that not all information stored on the defendants email systems were records, he could not «read the FRA to exclude computer systems such as those at issue here.» To buttress this contention he noted that the FRA had been designed to include materials regardless of physical format. On this issue of the adequacy of paper printouts as surrogate records to the electronic versions, Richey determined that paper printouts did not reproduce information that existed in

electronic versions. He specifically referred here to information about who received a message and when it was received as well as distribution lists, lists of individual senders and recipients, times of acknowledgement, and logon/logoff times. Richey rejected the defendants' argument that such items do not rise to the level of a record by noting that «[d]efendants' argument misses the point because this information does not stand alone. This information must be saved because, in combination with the substantive information contained in the electronic material, it will convey information about who knew what information and when they knew it.» Since the electronic versions could be federal records in their own right, he ruled that they must be saved, regardless of whether or not a paper copy was made. This determination made obsolete the defendants' continuing contention that the electronic version was merely an extra copy of the paper printout. Richey also ruled here that the defendants' recordkeeping procedures and recordkeeping guidelines violated the APA because they provided an inadequate records management program or supervision of staff decisions on the record and non-record status of their email messages and that they also allowed the improper destruction of federal records.<sup>22</sup>

Upon receiving the above decision, the defendants immediately appealed and sought relief at the next higher level of the judiciary. [The plaintiffs also appealed a portion of Richey's decision, however, their appeal dealt with issues which are not of direct concern to this paper.] In August 1993, the U.S. Appeals Court ruled. They affirmed Judge Richey's January 1993 decision that the defendants' electronic records management guidelines were in violation of the FRA, that paper printouts of electronic versions of records are not acceptable substitutes for the electronic versions as the strip off relevant contextual information, and that the existence of a paper printout did not invalidate the record status of the electronic version. In specific reference to the defendants' recordkeeping guidelines, the Appeals Court found that the instruction to print hard copy paper versions of electronic records was «flawed because the hard copy printouts that the agencies preserve may omit fundamental pieces of information which are an integral part of the original electronic records, such as the identity of the sender and/or recipient and the time of receipt.» In exploring this issue in more detail, the Appeals Court reasoned that by 1993, nearly 1,000 federal employees had access to Executive Office of the President (EOP) and NSC email systems and apparently used them to «relay lengthy substantive – even classified 'notes' that, in content, are often indistinguishable from letters and memoranda.» The paper printouts made from an email message would not necessarily contain all of the information associated with the same document that resided on a computer system. «Directories [for deciphering oftentimes cryptic user ID's and nicknames], distribution lists [which provide simple aliases that might include many users], acknowledgement of receipts and similar materials do not appear on the computer screen – and thus are not reproduced when users print out the information that appears on the screen.» Hence, a subsequent reader of the hard copy version may have trouble distinguishing «basic facts» about the document such as its sender, recipient, and time of transmission. And if the electronic version was erased then such contextualizing information would be forever unavailable. In addition, the fact that the electronic version was reduced to a paper copy did «not affect the record status» of the electronic version and render it an extra non-record copy unless the printout «include[d] all significant material contained in the electronic records.» The record compiled as a result of the case demonstrated to the Appeals Court that, as currently constructed, a printout and electronic version of a message could not appropriately be called copies of one another and, consequently, the electronic version continued to retain its federal record status even after it had been printed out. As such, «all of the FRA obligations concerning the management and preservation of records» still applied to the electronic version. To the Appeals Court mind, since the defendants'

agencies employees had never been instructed up to the time of the Judge Richey's January 1993 order to include «integral parts of the electronic record in any paper printout, there is no way [they] could conclude that the original records are mere 'extra copies' of the paper printouts.» The Appeals Court therefore found that the District Court's January 1993 ruling was «fully justified in concluding that [the government's] recordkeeping guidance was not in conformity with the [FRA].»<sup>23</sup> With this ruling the parties entered in settlement negotiations regarding the development of new recordkeeping guidelines. While at the time this may have appeared to have led all concerned to see the light at the end of the tunnel, new controversies would emerge that would lead to new litigation.

As a consequence of the above judicial determinations, the National Archives was required to develop a new government-wide policy for email management. In March 1994, they published a «notice of proposed rulemaking» and invited comments from any and all interested parties. The guidance was drafted by NARA with the goal of instructing federal agencies across the government on the «proper means of identifying, maintaining, and disposing of Federal records created or received on an email system.» When the final draft was to be issued it would be designed to provide agencies with the means to «develop specific recordkeeping policies, procedures, and requirements to fulfill their obligations» under the FRA and NARA regulations. The draft guideline pointed out that email messages were not to be considered non-records materials «merely because the information they contain may also be available elsewhere on paper or in electronic files.» It also stated that email messages could not be deleted without prior disposal authority from NARA. This applied equally to all versions of an email message, including the original electronic version. The draft guideline encouraged agencies to consider maintaining their electronic mail generated federal records in electronic form. The advantages noted for electronic maintenance included ease of storage, searching and manipulability, and the simultaneous availability of the records to many different users. The guidelines, however, did not mandate the electronic maintenance of email generated federal records. They instead placed the focus on the need to maintain email records in a proper recordkeeping system. While the proposed guideline advocated electronic recordkeeping systems, they offered agencies the option to print out email records and file them in a paper recordkeeping system. If an agency email system was not designated as a formal recordkeeping system, the draft guideline instructed that the email in question «must be copied or moved to an appropriate recordkeeping system for maintenance and disposition.» The guideline approved of such action as long as the appropriate «transmission and receipt information,» such as sender, recipient(s), message date, and read receipt were attached to the printout. Only when the electronic mail record was stored in a proper recordkeeping system, whether electronically or in paper, would the original electronic version on the 'live' email system be «appropriate for deletion.»<sup>24</sup>

This draft guideline elicited an enormous response. Over ninety-two separate comments totaling over 1,500 pages of written comments were received by NARA from federal agencies and private organization and individuals. This dwarfed previous replies to other notices of proposed rulemaking. Over 80% of the responses were from federal agencies, the «vast majority» of which were critical of its stipulations. Comments on the draft regulations revolved around several themes, including: that they would be too expensive and burdensome on agencies (agencies were under the impression that the guidance required electronic preservation, which they argued was not possible given the poor records management functionalities of commercial off-the-shelf email packages – as a consequence the final rule was revised to «provide realistic requirements that agencies can meet immediately); that they rendered too many email messages as records; that it would have a

«chilling effect» on agency email usage; that they inflated the significance of email; that NARA could not impose upon agencies the format in which they chose to preserve their records; and that the requirement to preserve transmission data was too complex, especially for distribution lists. The «final rule» was issued in August 1995. By that time the original lawsuit had effectively run its course and with the issuance of the final guideline Judge Richey dismissed the case from his court. A major change that resulted from the federal agency commentary was that references to electronic recordkeeping became muted in the final rule. NARA argued that discussions of electronic recordkeeping was something to strive for in the future and something which was better suited to a separate guidance. The final rule made agencies responsible for providing adequate training to staff, instructing them on distinguishing between records types and on how to transfer electronic mail messages into agency recordkeeping systems, be they electronic or paper. It also contained the following stipulations specific to the management of electronic mail. Transmission data (identification of sender, recipient(s), date sent) had to be preserved if the message's context was to be decipherable in the future. Agencies needed to determine what, if any, other transmission data should be linked to messages. Lists of nicknames in directories and/or distribution lists needed to be retained so that the identity of individuals on the system could be known. And for systems that provided them, read receipts needed to be preserved as well. Agencies were specifically instructed to not store copies of federal record email on an email system unless the system: enabled grouping of related records into relevant categories; permitted «easy and timely retrieval» of both individual items and groupings; was accessible to individuals who required access to them; was maintained in a usable format as specified by a NARA-approved records retention schedule; preserved transmission and receipt data; and, provided for the transfer of permanent records to NARA. Agencies whose electronic management of their email did not meet these standards were required to transfer electronic federal record email messages to a proper recordkeeping system. Transfers to a paper-based recordkeeping system required that proper transmission data be attached to individual messages. The final rule also forbade the destruction of electronic versions of email messages, whether they were records or not, without «prior disposition authority from NARA.» Once an electronic mail message was transferred to a recordkeeping system, «identical versions» such as the remaining electronic copy could be disposed of under General Records Schedule 20 (GRS 20), which dealt with the disposition of electronic records.<sup>25</sup>

The lesson taken by the government from the January and August 1993 court rulings was not how to enable electronic recordkeeping. Rather, it was how to make better paper printouts of email messages that included suitable transmission data. The plaintiffs lead, Michael Tankersley, later complained that by allowing agencies to rely on GRS 20 to dispose of their electronic email records, NARA was enabling the wholesale destruction of these messages regardless of their content or their qualitative differences to paper printouts.<sup>26</sup> General Records Schedules provide for «disposal authorization for temporary records common to several or all agencies of the federal government. They include records relating to civilian personnel, fiscal accounting, procurement, communications, printing, and other common functions, and certain nontextual records.» Agencies are permitted to dispose of records covered under a General Records Schedule without additional approval by NARA and without public notice. Such records are believed to constitute one-third of all records created by federal agencies. The remaining two-thirds of federal agency records – substantive program records – need to be covered by General Records Schedules specifically created for such program records.<sup>27</sup> Tankersley's objection to the government's reliance on a General Records Schedule for disposal of electronic records was that it classified all electronic records as a uniform type of record based on their format, whereas General Records

Schedules were supposed to deal with classes of information based on their function. This objection represented a fundamental chasm of opinion between the plaintiffs and the defendants – a chasm that was to lead a new lawsuit in December 1996.<sup>28</sup>

This most recent episode of PROFS-related litigation resulted from NARA's issuance of a new General Records Schedule 20 on the disposition of electronic records in conjunction with their final email regulations in August 1995. A draft of GRS 20 issued by NARA in October 1994 yielded 37 comments, 14 of which were submitted by federal agencies who were generally supportive of it. The 23 non-government submissions were largely critical, claiming that it would provide for the inappropriate deletion of electronic versions of records that had been converted to either paper or microform. The final August 1995 GRS 20 provided, in part, for the deletion of electronic versions of records created on word processing and electronic mail systems once a recordkeeping copy had been made and filed into either an electronic or paper-based recordkeeping system. This new GRS 20 was applied for the first time to office automation systems. Previously, such records were covered by General Records Schedule 23 – Records Common to Most Offices within Agencies.<sup>29</sup>

On December 23, 1996, roughly the same group of plaintiffs that had entered into the initial PROFS litigation in 1989 sued the government once again, this time over the new GRS 20. In this complaint the plaintiffs alleged that the new GRS 20 purported to «authorize destruction of electronic mail and word processing files at all federal agencies if a hard copy of the record had been created on paper or microfilm.» The suit reported that on December 17, 1996 the Archivist of the United States had endorsed an Executive Office of the President decision to dispose of electronic records under this new GRS 20, including electronic records from the Office of the U.S. Trade Representative that were supposedly preserved pursuant to the prior PROFS litigation.<sup>30</sup>

On October 22, 1997, U.S. District Judge Paul Friedman ruled against the government and declared GRS 20 to be «null and void» and ordered the defendants to «not destroy electronic records created, received or stored on electronic mail or word processing systems pursuant to General Records Schedule 20.» Judge Friedman determined that in issuing GRS 20 the Archivist had exceeded his authority under the Records Disposal Act<sup>31</sup> section of the FRA in three ways. First, he inappropriately authorized the destruction of federal agency «program» records under GRS 20 while General Records Schedules were «unequivocally limited...to administrative records.» Second, he found that the Archivist «abdicated to the various departments and agencies of the federal government his statutory responsibility under the Records Disposal Act to insure that records with administrative, legal, research or other value are preserved by federal agencies.» And third, he determined that the Archivist was remiss in identifying, as required by the Act, a specified retention period for the electronic records scheduled under GRS20. Pointing out that some word processing systems provide for a document annotation summary that would provide information on the document's author, purpose, date drafted and revised, etc., Friedman, like the District and Appeals Courts before him in the initial PROFS case, underscored the unique value of electronic versions of documents that are not converted to paper printouts. To Friedman's mind, such electronic records «do not become valueless duplicates or lose their character as 'program records' once they have been printed on paper; rather, they retain features unique to their medium.» Friedman went on to call the Archivist's actions in this case:

irrational...and one that is necessarily premised on the illogical notion that a paper copy adequately preserves the value of an electronic record. While, in some cases,

paper copies may in fact adequately preserve the administrative, legal, research or historical value of an electronic record, there is no rational basis for the Archivist's conclusion that a paper copy invariably adequately preserves such value in all cases and that electronic records never retain any administrative, legal, research or other value once such records have been copied to paper....By categorically determining that electronic records possess no administrative, legal, research or historical value beyond paper print-outs of the same document or record, the Archivist has absolved both himself and the federal agencies he is supposed to oversee of their statutory duties to evaluate specific electronic records as to their value. The Archivist has also given agencies carte blanche to destroy electronic versions without the Archivist's approval when the agency believes they are no longer needed by the agency. Because GRS 20 leaves the destruction of electronic versions of records unchecked by the Archivist, it fails to meet the requirements of Section 3303a(d) [of the Disposal of Records Act].<sup>32</sup>

In December 1997, the government filed an appeal challenging Friedman's order. As of this writing that court has yet to render an opinion. In April 1998, nearly six months after issuing his rather scathing opinion and order, Judge Friedman answered a motion for action by the plaintiffs and found that the defendants had «flagrantly violated» the above order. At issue were post-October 1997 published issuances by the Archivist in the *Federal Register* that agencies could continue to rely on GRS 20 to dispose of electronic records despite an order to the contrary that «could have not been more clear.» In an order striking the Archivist's issuances down, Judge Friedman ordered the Archivist to issue a new statement to federal agencies that GRS 20 has been rendered null and void.<sup>33</sup>

As a means to placate the Judge and develop a means to resolve the issues raised by the case, the Archivist of the United States convened an «Electronic Records Work Group» in November 1997 and tasked it with assisting the National Archives in developing a strategy to respond to the Judge Friedman's October 1997. It has been specifically charged to: review the current version of GRS 20; identify appropriate areas for revision; explore alternatives for authorizing disposition of electronic records; identify methods and techniques that are available with current technology to manage and provide access to electronic records; and, recommend practical solutions for the scheduling and disposition of electronic records. This working group is composed of NARA staff, federal agency records officers, and outside experts. The most recent options paper presented to the Archivist in May 1998 offered three proposals for bringing government practice in line with Judge Friedman's order: schedule all program records in all formats and eliminate electronic mail and word processing program records from GRS 20; revise the entire GRS to cover all formats of administrative records; and, revise GRS 20 to cover only those systems administration/management and operations records.<sup>34</sup> The timetable for completing the work of the working group calls for issuing the proposed options to federal agencies for comment in the first week of June 1998 and then publishing them in the *Federal Register* for public comment during the week of July 20, 1998. The final version will be publicly issued by the Archivist to meet the court's deadline of September 20, 1998. Given what it calls a «tight timeline,» the electronic records work group has decided to forego any exploration of electronic recordkeeping and has instead chosen to concentrate its efforts on developing a scheduling approach that is compliant with federal recordkeeping law.<sup>35</sup>

What started out as a seemingly simple challenge to the proposed erasure of the Reagan administration's electronic mail messages has developed over the following decade

of litigation as a detailed and thorough examination of the records and archival management of computer generated information throughout the federal government via office automation systems across three presidential administrations and their relation to the very specific requirements of federal recordkeeping statutes. The archival preservation of the electronic records preserved as a result of this litigation has proven to be enormously complex and has provided detailed information on the actual physical and organizational challenges involved.

### Preserving Electronic Mail Records: Policy and Technology Issues Raised by the PROFS Litigation

As noted above, one central aspect of Judge Richey's January 1993 ruling against the government was his instruction that NARA take immediate action to preserve the «electronic federal records» that had been the subject of the case. As part of this order NARA worked throughout the transition of power between the Bush and Clinton administrations transferring the Reagan and Bush materials from the Executive Office of the President to the National Archives. On January 28, 1993, the defendants entered a post hearing submission to Judge Richey in response to his question regarding what actions the Archivist had taken to comply with the ruling he issued earlier that month. This submission noted that the Archivist had taken physical custody of nearly 5,700 backup tapes (in cartridge, reel and helical scan formats) and over 150 personal computer hard drives. This massive volume resulted from the Temporary Restraining Orders (TRO) issued by the court which prevented the destruction of any messages from the defendants email system. Since the work of the government had to go forward upon the granting of the initial TRO in January 1989, the government had to save every backup it made in the interim until the case was resolved one way or the other. These contents of these items were to be eventually evaluated to distinguish the federal records from the presidential records from the non-records that resided on them.<sup>36</sup>

While the plaintiffs had learned on January 28, 1993 that the materials had been transferred to NARA, it would not be until the following month that they discovered the circumstances under which the transfer occurred. At that point in time they obtained access to a memorandum written by five NARA employees who participated in the transfer of the materials. Termed the «Armstrong Materials Task Force,» these employees reported on the difficulties they faced throughout the transfer. Given the time crunch they were required to operate under and the fact that they were not fully informed as to what materials were covered, their physical location, and their exact volume, the Task Force reported that «it would be impossible to establish intellectual control over the materials» and that they would instead have to rely on the inventories compiled by the White House and verify them against the labels on the materials themselves. Unfortunately, as they collected materials from the National Security Council, the Executive Office of the President's Office of Administration, and the White House Communications Agency, they noted that they «did not receive an adequate description of any system that would allow the Archives to operate the system or review the data contained in the system.»<sup>37</sup> Judge Richey was not patient with NARA's explanations of the problems and challenges posed by the backup tapes and hard drives. Despite the government's assertions that their actions were in accordance with the Court's January 1993 ruling, on May 21, 1993 Judge Richey found the defendants in contempt, determining that the government's plans to preserve, copy, and repair the materials in need of immediate action was inadequate. To vacate this contempt ruling Richey ordered the defendants to take «all necessary steps...to preserve the tapes transferred to the Archivist. These steps shall include all necessary preservation copying and the repair and enhancement

of any damaged tapes; [and, demonstrate] to the Court that the materials are being stored under conditions that will ensure their preservation and future access....»<sup>38</sup>

Kenneth Thibodeau, the head of NARA's Center for Electronic Records (CER), has provided details on the challenges presented in preserving the materials that had been transferred to NARA in January 1993. Initially, NARA's Office of Presidential Libraries was given custody of the materials. It soon became evident that they did not have the capability to handle the preservation demands and the Acting Archivist soon handed responsibility for these materials over to the CER. Unfortunately, the CER also had no systems capable of either reading or copying these materials. Fortunately, though, they had recently awarded a contract for an in-house preservation system and although the desired system had not yet been developed, the contractor was able to provide some technology to assist the CER in its efforts. The CER had previously, and still does, only accession electronic media that is handed over to them in a hardware and software independent environment. All of the materials transferred to their possession in this instance was hardware and software dependent. In order to develop a preservation plan of action the CER decided to examine each one of the nearly 6,000 tapes and 150 hard drives in their possession. Unfortunately, they had no staff with the appropriate security clearance to review the actual material on the tapes themselves and also had no secure facilities to store the tapes. Prior to this accession the CER had a total of perhaps five reels with classified information on them. According to Thibodeau, the CER eventually received approval to work with these materials «only if we configured the systems so that there was no way to output any of the data.» The CER was not allowed to bring the information on the tapes up on a screen and could not print any of it out. If they ran across an error on a tape, and there were many (see discussion below), there was no way to look at the actual contents of the tape to figure the error out. They just put the tape aside and moved onto the next. The CER did eventually receive permission to look at the tapes to decipher the errors that they ran across, however, once they began analyzing the errors they discovered that some tapes did not conform to industry standards and that they often exhibited properties that the CER did not even know were possible for tapes.<sup>39</sup>

From the Archives perspective, they were tasked with a chore of monumental proportions that literally dwarfed all of their previous work. According to Thibodeau, «there is no comparison between everything we had ever done and what we did in that short time period with the PROFS [materials].» Copying the files off the NSC's personal computer hard drives alone was, by volume, larger than everything the CER had collected over the previous twenty years. Copying the information on the hard drives was complicated by the fact that the NSC's removable hard drives were «handcrafted hard drives» not compliant with industry standards. Fortunately for the CER, the NSC had saved one of each of the five different types of personal computers required to load and read these hard drives. In order to retrieve the data off of them the CER had to place the hard drives back into the appropriate personal computer and then output the contents onto industry standard removable hard drives. Backup tapes had their problems as well. Creased tapes had to be ironed, ripped tapes had to be spliced, and tapes with unwanted moisture on them had to be literally baked. There was only a 5 degree Fahrenheit window of opportunity for correctly baking a tape and exceeding that range would cause damage the tape. In order to properly calculate that 5 degree window, the CER had to know the specific chemical makeup of a specific tape based on the manufacturer's batch number because different batches of the same make of tape could have a different chemistry. In addition, in order to be able to copy a backup tape one needed to know the system configuration at the time that the backup was made in order to properly reload the tape and read it. Sometimes even getting that far was not enough. At times the CER had to contact the

tape manufacturer in order to understand how particular types of tape stored the date of the backup. All of these types of preservation issues had never been dealt with by the CER. Previously, if an agency sent a bad tape to the CER they returned it and required the agency to submit a new readable copy. Given that these tapes came to the CER as part of a Court order and that they documented various iterations of the defendants systems at different points in time over the previous decade – iterations that no longer existed – they had no such luxury. And all the while that the CER was performing these preservation tasks they did not receive any new appropriations to offset their costs. At one point, CER-head Thibodeau issued a stop work order for the CER's non-PROFS work because it was expending its budget too rapidly on PROFS related activities. Despite all of these challenges, the CER was actually quite successful in copying the materials. According to Thibodeau, the eventual success rate was over 99%. This success, however, did not come without a serious cost to the CER's other work. Thibodeau reports that the PROFS work essentially «brought the rest of the [CER's] program to a stop...I basically had to tell staff [to] stop accessioning stuff [from the rest of the government] because we [could] not do anything with it if we accessioned it. All of our capability was going to PROFS.»<sup>40</sup>

What is striking when viewing the above from an international perspective is that all other national archival electronic archiving programs in Europe have committed fewer human resources than was available to the CER throughout the above litigation.<sup>41</sup> This would seem to indicate that any national European program finding itself in a similar situation would likely see itself quickly overwhelmed to not only cope with the mass of data but also to keep its other program efforts moving forward.

### Conclusion

After nearly a decade of litigation the U.S. federal government is still attempting to manage its electronic records in a manner compatible with federal recordkeeping law. The issues raised by the various legal battles point out salient features of electronic records management and electronic archiving that are relevant to any institution seeking to effectively manage its computer generated information resources. The most salient to policy lessons from the PROFS-related litigation include the following salient points:

- Electronic mail software can produce official government records.
- Computer systems need to accommodate an electronic recordkeeping functionality at the front end during systems design if back end archival processing and digital preservation is to be accomplished in a timely and economical manner.
- This electronic recordkeeping functionality needs to be able to create and/or capture metadata that identify record status and provide for appropriate subject, function, and genre classification.
- Policies that rely on print to paper can strip out critical systems metadata and also can violate the law if the printout is used as a justification for deleting electronic versions.
- Backup tapes are not a suitable format for archival preservation.
- Archival management of electronic records needs to explore strategies and tactics that retain original systems functionalities as hardware and software independent environments may decontextualize records and harm their evidential value and authenticity
- Attempts at salvage archiving of computer-generated data are likely to require resources that are beyond what is available in most institutions and will likely be unsuccessful

unless substantial additional resources can be concentrated on the salvage effort. Such efforts, though, are likely to significantly hamper other electronic archiving program elements, especially the critical need to address electronic archiving issues at the front end of the records life cycle.

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ENDNOTES:

<sup>1</sup> Armstrong, et al. v. Executive Office of the President, et al., (Civil Action No. 89-1042), Declaration of George Van Eron, February 6, 1989, p. 2. Since 1979, Van Eron had been the Director of the NSC Secretariat, the «information management office of the NSC»; United States of America v. Poindexter (Criminal No. 88-0080-01), Volume IX, Transcript of Trial, Morning Session, March 15, 1990. Testimony of Kelly Williams, pp. 1722-1814. Williams served in the White House Communications Agency (WHCA) – a joint U.S. military organization which provides communications support to the President and other entities within the Executive Office of the President.

<sup>2</sup> See: U.S. Congress. House. Select Committee to Investigate Covert Arms Transactions with Iran, and U.S. Congress. Senate. Select Committee on Secret Military Assistance to Iran and the Nicaraguan Opposition, *Report of the Congressional Committees Investigating the Iran-Contra Affair, with Supplemental, Minority, and Additional Views* (Washington, D.C.: Government Printing Office, 1987), p. 138.

<sup>3</sup> United States of America v. Poindexter (Criminal No. 88-0080-01), Volume IX, Transcript of Trial, Morning Session, March 15, 1990. Testimony of Kelly Williams, pp. 1755-1765, 1800-1801.

<sup>4</sup> U.S. National Security Council, Memorandum for the NSC Staff from Grant S. Green, Jr., «PROFS and A1,» March 5, 1987. Undated fact sheet entitled «PROFS/VAX» attached. The telephone analogy was to become a primary argument by the government during the PROFS litigation

<sup>5</sup> Armstrong, et al. v. Executive Office of the President, et al. (Civil Action No. 89-0142), Declaration of Gordon Riggle, February 6, 1989. Riggle served as the Director of the Office of Administration within the Executive Office of the President from September 1987 through the close of the Reagan administration (January 20, 1989).

<sup>6</sup> U.S. National Security Council, PROFS note from Paul Schott Stevens to All PROFS Users, «PROFS Notes,» January 21, 1988 at 15:34:13.

<sup>7</sup> U.S. Executive Office of the President. Office of the White House. Office of Counsel to the President, Memorandum for White House Staff from Arthur A. Culvahouse, Jr., Counsel to the President, «Presidential Records Act Obligations of Departing White House Staff,» December 1, 1988.

<sup>8</sup> Interviews with Eddie Becker, Scott Armstrong, and John Fawcett, July 25, 1995, May 27, 1997, and May 27, 1997 respectively. At that time Becker was a researcher and consultant with the NSA, Armstrong was the NSA's Executive Director, and Fawcett was NARA's Director of Presidential Libraries. As a general rule, NARA only considers 1-2% of all the records that are ever created by the federal government to be worthy of archival preservation.

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<sup>9</sup> 44 United States Code §§ 2201-2207. The PRA was enacted in 1978 and established for the first time that the records created by a President and his staff were the property of the United States, not the President's to do with as he pleased. A «presidential record» is defined in the PRA as «documentary materials, or any reasonably segregable portion thereof, created or received by the President, his immediate staff, or a unit or individual of the Executive Office of the President whose function is to advise and assist the President, in the course of conducting activities which relate to or have an effect upon the carrying out of the constitutional, statutory, or other official duties of the President.»

<sup>10</sup> 44 United States Code §§ 3301 et. seq. This act is part of what is commonly considered the broader Federal Records Act (44 United States Code §§ 2101-2118, 2901-2909, 3101-3107, and 3301-3324). Since the passage of the Federal Records Act in 1950, the FRA has come to embody a series of interlocking statutes that cover the entire lifecycle of a record – creation, use, management, and disposition – and that stipulate recordkeeping responsibilities for both NARA and federal agencies. The FRA defines a federal «record» as including «all books, papers, maps, photographs, machine readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the informational value of data in them. Library and museum material made or acquired and preserved solely for reference or exhibition purposes, extra copies of documents preserved only for convenience of reference, and stocks of publications and of processed documents are not included.»

<sup>11</sup> 5 United States Code § 551 et. seq. The APA was enacted in 1946 to govern «practice and proceedings before federal administrative agencies.» See: *Black's Law Dictionary, Abridged Sixth Edition* (St. Paul, Minnesota: West Publishing Co., 1991).

<sup>12</sup> 44 United States Code § 2203.

<sup>13</sup> 44 United States Code §§ 3101 and 3102.

<sup>14</sup> 44 United States Code §§ 2904 and 3303.

<sup>15</sup> 5 United States Code § 551.

<sup>16</sup> *Armstrong, et al. v. Executive Office of the President, et al.* (Civil Action No. 89-0142), Complaint for Declaratory and Injunctive Relief, January 19, 1989.

<sup>17</sup> *Armstrong, et al. v. Executive Office of the President, et al.* (Civil Action 89-1042), Transcript of Temporary Restraining Order Hearing Before the Honorable Barrington D. Parker, United States District Judge, January 19, 1989.

<sup>18</sup> *Armstrong, et al. v. Executive Office of the President, et al.* (Civil Action 89-1042), Temporary Restraining Order, January 19, 1989.

<sup>19</sup> *Armstrong, et al. v. Executive Office of the President, et al.* (Civil Action No. 89-0142), Supplemental Brief in Support of Defendants' Motion for Summary Judgment, June 12, 1992.

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<sup>20</sup> Armstrong, et al. v. Executive Office of the President, et al. (Civil Action No. 89-0142), Plaintiffs Opposition to Defendants' Motion for Summary Judgment and Memorandum in Support of Cross-Motion for Summary Judgment on the Adequacy of Defendants' Recordkeeping Guidelines and the Archivist's Failure to Perform His Statutory Duties, July 6, 1992.

<sup>21</sup> Armstrong, et al. v. Executive Office of the President, et al. (Civil Action No. 89-0142), Reply Memorandum in Support of Defendants' Motion for Summary Judgment and in Opposition to Plaintiffs' Cross-Motion for Summary Judgment on Counts II and IV (Recordkeeping and Archivist's Duties), August 8, 1992.

<sup>22</sup> Armstrong, et al. v. Executive Office of the President, et al. (Civil Action No. 89-0142), Opinion, January 6, 1993. (810 F.Supp. 335).

<sup>23</sup> Armstrong et al., v. Executive Office of the President, Office of Administration et al., (Civil Action Nos. 93-5002, 93-5048, 93-5156, 93-5177), Opinion, August 13, 1993. (1 F.3d 1274).

<sup>24</sup> U.S. National Archives and Records Administration, «Electronic Mail Systems, Notice of Proposed Rulemaking,» *Federal Register*, March 24, 1994, pp. 13906-13910.

<sup>25</sup> U.S. National Archives and Records Administration, «Electronic Mail Systems, Final Rule,» *Federal Register*, August 25, 1995, pp. 44633-44642.

<sup>26</sup> Interview with Michael Tankersley, May 28, 1997.

<sup>27</sup> U.S. National Archives and Records Administration, «Introduction to General Records Schedules,» Transmittal No. 7, August 1995.

<sup>28</sup> Public Citizen, Inc., et al. v. Carlin et al. (Civil Action No. 96-2840).

<sup>29</sup> United States. National Archives and Records Administration, «General Records Schedule 20 -- Disposition of Electronic Records,» August 14, 1995. Available June 1, 1998 at: <gopher://gopher.nara.gov:70/00/managers/federal/grsfr.txt>.

NARA rationale for their position is captured in the following passage: «For records to be useful they must be accessible to all authorized staff, and must be maintained in recordkeeping systems that have the capability to group similar records and provide the necessary context to connect the record with the relevant agency function or transaction. Storage of electronic mail or word processing records on electronic information systems that do not have these attributes will not satisfy the needs of the agency or the needs of future researchers....Search capability and context would be severely limited if records are stored in disparate electronic files maintained by individuals rather than in agency-controlled recordkeeping systems. Furthermore, if electronic records are stored in electronic information systems without records management functionality, permanent records may not be readily accessible for research. Unless the records are adequately indexed, searches, even full-text searches, may fail to find all documents relevant to the subject of the query. In addition, numerous irrelevant temporary records, that would be segregable in systems with records management functionality, may be found. Agency records can be managed only if they are in agency recordkeeping systems....The respondents who [criticized GRS 20] mistakenly concluded that the proposed GRS 20 authorized the deletion of valuable records. On the

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contrary, GRS 20 requires the preservation of valuable records by instructing agencies to transfer them to an appropriate recordkeeping system. Only after the records have been properly preserved in a recordkeeping system will agencies be authorized by GRS 20 to delete the versions on the electronic mail and word processing systems. As indicated, most agencies have no viable alternative at the present time but to use their current paper files as their recordkeeping system. As the technology progresses, however, agencies will be able to consider converting to electronic recordkeeping systems for their records....The critical point is that the revised GRS does not authorize the destruction of the recordkeeping copy of the electronic mail and word processing records. The unique program records that are produced with office automation will be maintained in organized, managed office recordkeeping systems. Federal agencies must have the authority to delete the original version from the "live" electronic information system to avoid system overload and to ensure effective records management.»

<sup>30</sup> Public Citizen, Inc., et al. v. Carlin et al. (Civil Action No. 96-2840), Complaint for Declaratory and Injunctive Relief, December 23, 1996. Other plaintiffs in the case include the: National Security Archive, American Historical Association, American Library Association, Center for National Security Studies, Organization of American Historians, Scott Armstrong, and Eddie Becker. In addition to Archivist of the United States John Carlin, other defendants include the: Executive Office of the President (EOP), the EOP's Office of Administration, and the Office of the U.S. Trade Representative.

<sup>31</sup> 44 United States Code §§ 3301-3324. Friedman specifically pointed to section 3303(a)d which authorizes the Archivist to «promulgate schedules authorizing the disposal, after the lapse of specified periods of time, of records of a specified form or character common to several or all agencies if such records will not, at the end of the periods specified, have sufficient administrative, legal, research, or other value to warrant their further preservation....»

<sup>32</sup> Public Citizen, Inc., et al. v. Carlin et al. (Civil Action No. 96-2840), Opinion and Order, October 22, 1997.

<sup>33</sup> Public Citizen, Inc., et al. v. Carlin et al. (Civil Action No. 96-2840), Memorandum Opinion and Order, April 9, 1998.

<sup>34</sup> U.S. National Archives and Records Administration. Electronic Records Work Group, «Summary of Draft Proposals for Action on the Management of Electronic Records for May 18, 1998, Public Meeting,» May 18, 1998. Available June 1, 1998 at: <http://www.nara.gov/records/grs20/index.html>.

<sup>35</sup> U.S. National Archives and Records Administration. Electronic Records Work Group, «Public Meeting of May 18, 1998. Available June 1, 1998 at: <http://www.nara.gov/records/grs20/minutes4.html>.

<sup>36</sup> Armstrong, et al. v. Executive Office of the President, et al. (Civil Action No. 89-0142), Archivist's Post-Hearing Submission, January 28, 1993. Another part of this submission reported on an agreement between the Archivist and soon to be ex-President Bush wherein the Archivist provided Bush with «exclusive legal control of all Presidential information, and all derivative information in whatever form, contained on the materials.» This aspect of the agreement led to another and separate lawsuit which resulted in the judicial determination

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that the Archivist had violated both the Presidential Records Act, portions of Article II of the U.S. Constitution (under the Constitution the Archivist was obligated only to the sitting President, not a former President who was now a private citizen), and that the «Archivist's decision to enter into the agreement...was arbitrary, capricious, an abuse of discretion, and contrary to law.» American Historical Association et al. v. Trudy Peterson, in her official capacity as Acting Archivist of the United States, and George Bush (Civil Action No. 94-2671), Memorandum Opinion and Order, as amended, February 27, 1995 (876 F.Supp 1300).

<sup>37</sup> U.S. National Archives and Records Administration, «Armstrong Materials Task Force – Summary Report of Actions,» February 16, 1993.

<sup>38</sup> Armstrong, et al. v. Executive Office of the President, et al. (Civil Action No. 89-0142), Order, May 21, 1993.

<sup>39</sup> Interview with Kenneth Thibodeau, May 30, 1997. Thibodeau has been the Director of the Center for Electronic Records since December 1988.

<sup>40</sup> Ibid.

<sup>41</sup> See: International Council on Archives. Committee on Electronic Records, Electronic Records Programs: Report on the 1994/1995 Survey (Paris, France: International Council on Archives, February 1997).