Mission Essential Functions (MEF)

Beyond the immediate public safety concerns of operating large open buildings, VCU Libraries has three (3) Mission Essential Functions:

- Public Services
- Ensuring availability of automated services and maintaining technical infrastructure and access to online resources
- Protecting the physical collections

See separate sections on each of these essential functions underneath tabs in the notebook. Each section contains information about operations, who is responsible and response plans and key contacts.

See these sections and pages:

MISSION ESSENTIAL FUNCTIONS
  MEF I: PROVIDING PUBLIC SERVICES
  MEF II: ENSURING AUTOMATED SYSTEMS
  MEF III: PROTECTING THE COLLECTIONS
MEF I: Providing Public Services
In an emergency that affects utilization of library facilities for more than 48 hours, an emergency task force will convene to assess the feasibility, means and timeframe of providing each of the public service functions listed below.

The emergency task force will be comprised of:

- Members of VCU Libraries’ Administrative Council
- Director of Communications and Public Relations

The emergency task force will be guided by the four scenarios below, as well as the plans prepared for the mission essential functions of: protecting the collections and ensuring available automated services, in planning and implementing re-establishment of public services.
CHECKLIST OF PUBLIC SERVICES FUNCTIONS

- *Safety and security for patrons and library staff
- Access to physical collections
  - Stacks, reserves, media, reference, special collections and archives
- *Access to digital collections
  - E-journals, e-books, government documents, e-reserves, etc. (see related mission essential function)
- Access to technology/equipment
  - MRS audio/video editing, headphones, laptops, mobile devices, general computers
- Media booking and group viewing room
- Study space(s)
- *Circulation: check out
- Circulation: holds, searches, *renewals
- Circulation: payment of fines and fees (due dates may be extended)
- *Book return (utilizing 500 Academic Centre for temporary storage as capacity permits)
- *Cross campus delivery
- *Interlibrary loan
- Rush processing of “on order” and “in process” materials (by Cataloging/Preservation)
- *Point of need reference services: in-person, telephone, e-mail, chat
- Research services: consultation appointments
- Instruction and outreach services

*Denotes functions that are essential and have the first priority to be maintained at an on or off campus location within 48 hours of the emergency task force convening. The balance of services will be maintained or re-established off site as soon as possible as circumstances permit.

Scenario I: Tompkins-McCaw Library (TML) inaccessible

If only TML is affected by the emergency, a public services point will be established at the Community Health Education Center (CHEC). An escort will be provided to staff paging materials from TML. If entry to TML is not possible, physical items will be provided via ILL/DD services from the Resource Delivery Services department at Cabell Library. If possible, core reference materials will be relocated to CHEC. Staff will be designated to provide point-of-need references services by email and chat, utilizing the telecommuting agreement as appropriate.
and necessary. RDS and facilities/mailroom staff will utilize its workspace in Cabell Library. Instructional services for specific courses will be provided where the classes are meeting.

**Scenario II: Cabell Library (JBCL) inaccessible**

If only Cabell Library (JBCL) is affected by the emergency, a public services point will be established at the Student Commons, a nearby classroom building, or the Student Services Center in Harris Hall. An escort will be provided to staff paging materials from JBCL. If entry to JBCL is not possible, physical items will be provided via ILL from the Resource Delivery Services department at the Tompkins-McCaw Library. Instructional services for specific courses will be provided where the classes are meeting.

Coordinate with Technology Services and/or the VCU Technology Advisory Committee to identify computer classrooms and labs available for general computing or specialized computing functions (e.g., digital media). Station librarians with laptops in these locations to provide reference and consultation services wherever possible in these locations.

**Scenario III: One or the other campuses is inaccessible**

If one or the other campuses is inaccessible, a public service point will be set up at the other campus' library facility. E.g., if Monroe Park Campus is closed, a public services point will be established at Tompkins-McCaw Library. An escort will be provided to staff paging materials, if entry to one or the other libraries is possible. Otherwise, Resource Delivery Services will borrow items that are no longer accessible from other libraries. Staff will be designated to provide point-of-need references services by email and chat, utilizing the telecommuting agreement as appropriate and necessary. 500 Academic Centre will be utilized as staff workspace for RDS and facilities/mailroom staff as needed.

**Scenario IV: Both campuses are inaccessible**

If both campuses are inaccessible, a public services point will be established at one of the Richmond Area Library Consortium facilities. An escort will be provided to staff paging materials from JBCL and TML, if entry is feasible. ILL services will be provided via existing collaborative arrangements within the Richmond Area Library Consortium (RALC), VIVA, ASERL, and RAPID, and other non-reciprocal institutions and a sister library. Chat service for reference, utilizing free chat and co-browsing software, will be established. Staff will be designated to provide point-of-need references services by email and chat, utilizing the telecommuting agreement as appropriate and necessary.
MEF II: Ensuring Automated Systems
## Sensitive IT Systems At-a-Glance

<table>
<thead>
<tr>
<th>Production Systems</th>
<th>Confidentiality</th>
<th>Integrity</th>
<th>Availability</th>
<th>Significant Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>EzProxy Production and standby proxy</td>
<td>medium</td>
<td>medium</td>
<td>high</td>
<td></td>
</tr>
<tr>
<td>proxy.library.vcu.edu</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lena.uls.vcu.edu</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library Web</td>
<td>medium</td>
<td>medium</td>
<td>high</td>
<td>Availability: No access to Web services or alerts.</td>
</tr>
<tr>
<td><a href="http://www.library.vcu.edu">www.library.vcu.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alma/Primo*</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>Data exposure: VUCARD numbers, addresses, and library financial and library borrowing records for VCU/MCVH.</td>
</tr>
<tr>
<td>Alma.uls.vcu.edu</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alma local ftp server</td>
<td>high</td>
<td>medium</td>
<td>medium</td>
<td>Data exposure: VUCARD numbers, addresses for students, faculty, staff at VCU/MCVH Availability: unable to load or update patrons in Alma</td>
</tr>
<tr>
<td>Alma.uls.vcu.edu</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library Fileshares</td>
<td>medium</td>
<td>high</td>
<td>medium</td>
<td>Availability: Internal business operations relying on file server Integrity: Masters of digital collections Data exposure: Library personnel and business records</td>
</tr>
<tr>
<td>library.uc.adp.vcu.edu</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ILLiad (Interlibrary loan document delivery</td>
<td>medium</td>
<td>medium</td>
<td>medium</td>
<td>Data exposure: Interlibrary loan history and financial records. Scanned articles under copyright.</td>
</tr>
<tr>
<td>services.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETD’s</td>
<td>medium</td>
<td>high</td>
<td>medium</td>
<td>Integrity: Copy of</td>
</tr>
</tbody>
</table>

Updated March 5, 2013.
<table>
<thead>
<tr>
<th>Test Systems</th>
<th>Confidentiality</th>
<th>Integrity</th>
<th>Availability</th>
<th>Significant Risks</th>
</tr>
</thead>
</table>
| Library Web Backup
miles.uls.vcu.edu | medium           | medium    | low          | Data exposure: Student worker job applications, Student financial transactions for ETD’s |
| ETD’s Test
(Electronic Theses/Dissertations)
uls-linux17.uls.vcu.edu | medium           | low       | low          | Data exposure: embargoed/protected student ETD’s (intellectual property) |
Reference: Section 2.2 IT System and Data Sensitivity Classification

IT System and Data Sensitivity Classification requirements identify the steps necessary to classify IT systems and data according to their sensitivity with respect to the following three criteria:

- Confidentiality, which addresses sensitivity to unauthorized disclosure
- Integrity, which addresses sensitivity to unauthorized modification
- Availability, which addresses sensitivity to outages

Sensitive Data is any data of which the compromise with respect to confidentiality, integrity, and/or availability could have a material adverse effect on VCU interests, the conduct of VCU programs, or the privacy to which individuals are entitled. Data sensitivity is directly proportional to the materiality of a compromise of the data with respect to these criteria. VCU must classify each IT system by sensitivity according to the most sensitive data that the IT system stores, processes, or transmits.

Alma/Primo Disaster Recovery & Contingency Plan

I. Introduction

VCU Libraries runs Alma/Primo, its integrated library management system, which supports many of the library's internal and external functions. This document describes the processes and contingencies currently in place for continuity of Alma and Primo operations in the event of an extended outage (more than 24 hours). Primo is the public facing part of the system, while Alma is focused on back-end processing. However, in order for Primo to be fully functional for the public, Alma must be operational.

Alma and Primo are cloud-based systems operated by Ex Libris Inc. Safeguards and procedures are in place that govern recovery operations. Possible scenarios for extended outages include VCU network failures, wider network problems, application problems and Ex Libris data center problems.

In the most likely scenarios of systems failure for either Alma or Primo, the proper procedure is to immediately contact Ex Libris and proceed from there.

II. Recovery Team

The recovery team will be comprised of personnel who have a working knowledge of the existing system and the authority to make decisions and coordinate recovery efforts.

Administrator (John Duke)
- Approves all significant recovery efforts.
- Acts as information officer for library administration.
- Approves purchasing for expenditures associated with recovery.

Manager (Jimmy Ghaphery)
- Maintains and distributes recovery plans.
- Coordinates recovery and testing efforts.
- Logs all events, documents and expenditures associated with the recovery.
- Delegated "Administrator" responsibility in absence of administrator.
Integrated Library Systems Librarian (Tom McNulty)
- Delegated “Manager” responsibility in absence of administrator.
- Primary application lead responsible for certifying application recovery.

Contact Information
- John Duke: Senior Associate University Librarian 320-0590, cell 836-0861
- Tom McNulty: Integrated Systems Librarian, Primary Alma Contact 540-760-5776
- Jimmy Ghaphery: LIS Dept. Head home 675-2485, cell 240-3952
- Ex Libris (Alma/PrimoVendor): 800-762-6300. 24x7hub@exlibrisgroup.com

III. Distribution List

VCU Libraries Emergency Preparedness Plan
Library Information Systems
University Computer Center

IV. Manual Contingencies

Scope

In the event of a disaster to the Alma/Primo System, the following operations would be affected:

**PUBLIC ACCESS:** The public's primary access to the VCU Libraries collections (print, online, and reserves) is through Primo. Holdings and circulation information are displayed. Primo is also an essential component in library instruction. *Units: All*

**ORDERING:** All library materials are ordered through Alma. Most records are derived through OCLC, an international bibliographic database. Purchase orders are generated and tracked by the system. Financial data and statistical reports are generated. Fund reports are run weekly so that encumbrance and expenditure information in print format is never more than four days out of date. *Unit: Ordering.*

**RECEIVING:** All library monographs and serials are received through Alma. *Unit: Receiving.*

**CATALOGING:** All material that is received in the library is cataloged through Alma. Updated records are transferred from OCLC as appropriate. Copy and volume holdings information is added to cataloged records. *Unit: Cataloging.*
**BINDING AND PRESERVATION:** Items that are sent to the bindery are tracked through the Aleph ITEMS module. Shipment reports are generated through LARS bindery software for each shipment. The bindery can generate shipment inventory reports. Volumes are processed through Alma when sent to the bindery. In addition, items in need of repair and shelf preparation, and transfers to compact shelving are tracked through the system. Preservation treatment notes are added to bibliographic records as appropriate. *Unit: Preservation.*

**CIRCULATION:** All VCU Libraries materials are circulated to VCUL borrowers through Alma, including traditional course reserve items. The system is used to calculate overdue fines and bills for patrons. The system is also used to generate notices and action reports. The system controls access to the collection by verifying legitimate patrons and by blocking circulation to patrons with outstanding loans and fines. *Units: Circulation and Information Services, Resource Delivery Services, Media and Reserve Services, Resources and Operations, and User Services.*

**INTERLIBRARY LOAN LENDING:** Part of the Resource Delivery Services department (RDS), all Interlibrary Loan Lending requests are verified through Alma to determine materials availability and location. The item status for all library returnables (books, dissertations, videos, DVD, etc.) that are loaned to other libraries is updated in Alma to indicate that the item is on loan to another institution. The status for these items is updated again when the item is returned. *Unit: Resource Delivery Services*

**INTERLIBRARY LOAN BORROWING:** Part of the Resource Delivery Services department (RDS), mediated Interlibrary Loan Borrowing requests are verified through Alma to determine material availability and location. OCLC holding statements, although not always accurate and complete, are also used to determine materials availability. Alma is used to verify user information as well. Decisions to order or refer the user to VCUL collection is based on determining the availability of material in the collections. Users submitting requests via SFX will not be able to verify the availability and location of materials before submitting the request. *Unit: Resource Delivery Services*

**DOCUMENT DELIVERY:** Part of the Resource Delivery Services department (RDS), all Document Delivery requests are verified through Alma to locate user information and determine material availability and location. Decision to order or retrieve materials from VCUL collections is based on the availability of the material. Document delivery requests for returnables are checked out to users through Alma. *Unit: Resource Delivery Services.*
QATAR CAMPUS:
In addition to the Richmond campus, the Alma server is also used by VCU Qatar to support its library operations (Ordering, Receiving, Cataloging, Public Access). In the event of a disaster to the Alma system, Qatar would adhere to the standards in place at the Richmond campus for contingency and recovery, and the Richmond campus would contact the Qatar campus at least daily to apprise them of the situation.

BEST PRACTICES APPROACH:
In the event of an interruption of Alma services, critical backlogs will develop in a number of areas. Manual procedures will be implemented to continue library services. Some operations will be more heavily affected according to the time of year a disaster might strike. Other operations would be severely disrupted regardless of when the library loses computer support.

For some operations, the University Librarian may authorize hiring of temporary staff and require the permanent staff to work overtime to maintain operations and to key in data when the system is restored. In such a situation, records will be maintained for these and any other extraordinary expenses by the VCU Libraries Business Office and forwarded to the Department of Risk Management for insurance reimbursement.

Elements of this plan will be implemented according to three progressive levels according to the severity of the disaster:

- **SERIOUS**
- **CRITICAL**
- **WORST**

Some operations do not have an intermediate "critical" level, but move directly from serious to worst.
PROGRESSIVE LEVEL SCENARIOS

PUBLIC ACCESS

Because of the critical nature of public access to the scholarly record represented by Alma/Primo, unplanned interruptions in service will trigger the implementation of the following plan.

SERIOUS: In the event of the loss of the system for a single day:

Alerts: Alerts will be placed on the library home page which includes the alerts and news rss feed.

Access to local holdings: WorldCat.org is an international online database of library holdings that indicates monograph and serial title holdings for individual libraries. Library users can search the entire database, as well as limit queries to include only the VCU Libraries. Volume holdings for most serial titles are available although issue information is not. For monographs local holdings information such as specific location and availability is not available. WorldCat.org can be used to answer patron queries about VCU's holdings for specific titles and can be used to locate approximate call numbers.

Primo and Get it @ VCU: Primo not only includes access to local collections but also presents journal articles. Get it @ VCU is our OpenURL resolver for access to electronic journal articles from both Primo and other external databases.

Course Reserves: Alerts will be displayed stating that Course Reserves are not available for lookup. Media & Reserve Services staff will send an email alert to the reserve faculty list. Students will be directed to MRS or the TML service desk where traditional reserves may be paged manually. E-reserve original documents may be accessed from staff files. If the e-reserve database is available, staff may identify the file name for each document, then supply the basic web address scheme and file name to the user. Depending on the time of year, this could result in serious interruptions for students and/or significant backlogs in reserves processing. Distance education services would be significantly impacted.

WORST: Interruption of service for longer than one week, while the semester is in session would create a hardship for students

Updated March 5, 2013.
and faculty in need of access to library collections and Course Reserves material. Continue with actions as above, plus:

If there were a significant number of course reserves requests yet to be processed, these could be made available through a web page, with the processing data stored to a networked drive which would later be used for input into Alma once the system returns. Daily updates to alerts would be needed.

2. ORDERING

SERIOUS: If the outage occurs during April-August when the ordering year has passed its peak, most order information will have been entered. Ordering of all materials except priority items can be delayed.

Priority items will be ordered from contract vendors by telephone, fax, or online via the vendor’s system. Items not available from contract vendors may be ordered via eVA.

Datafiles from GOBI/YBP and PromptCAT, with embedded order data, will be held for loading after recovery.

A database with order information will be maintained on networked storage using a special series of purchase order numbers; this information (including fund information) will be re-keyed into Alma when the system is again available.

A report from the database will be run to show encumbrance information, as necessary.

CRITICAL: If the ordering year is at its peak (September-March) and the outage is expected to be less than two weeks, ordering of all materials available from contract vendors can continue. Items not available from contract vendors can be delayed, except for priority items.

Priority items will be ordered from contract vendors by telephone, fax, or online via the vendor’s system. Items not available from contract vendors may be ordered via eVA.
Datafiles from GOBI/YBP and PromptCAT, with embedded order data, will be held for loading after recovery.

A database with order information will be maintained on networked storage using a special series of purchase order numbers; this information (including fund information) will be re-keyed into Alma when the system is again available.

A report from the database will be run to show encumbrance information, as necessary.

**WORST:** If the ordering year is at its peak (September-March) and the outage is expected to be longer than two weeks, all materials (not just priority materials) will be ordered and tracked manually or via vendor systems or eVA.

Items will be ordered from contract vendors by telephone, fax, or online via the vendor’s system. Items not available from contract vendors may be ordered via eVA.

Datafiles from GOBI/YBP and PromptCAT, with embedded order data, will be held for loading after recovery.

A database with order information will be maintained on a networked storage using a special series of purchase order numbers; this information (including fund information) will be re-keyed into ALMA when the system is again available.

A report from the database will be run to show encumbrance information, as necessary.

3. **RECEIVING**

**SERIOUS:** During July-August, the receiving cycle has passed its peak and most receiving information will have been entered. Receiving of all monographs, except for priority items, can be delayed. Similarly, if the receiving cycle is at its peak (September-June), but the outage is expected to be less than two weeks, most receipts can be delayed.

Priority items are shipped to VCU Libraries separate from other materials (and therefore easily identifiable).
Priority items will be opened and forwarded for rush processing.

Invoices for priority materials will be processed normally in eVA/Banner and forwarded to Accounts Payable.

A copy of the invoice will be annotated with received information. This copy will be kept in a separate file until computer service is restored. At that time, received information will be keyed into the Alma receiving and invoice records.

Periodicals receiving will be suspended.

**WORST:** If the receiving cycle is at its peak (September-June) and the outage is expected to be longer than two weeks, the department will begin receiving all materials (not just priority materials) manually.

Boxes will be opened and the contents compared with invoices. Any discrepancy between the actual shipment and the invoice information will be noted on the invoice, which will be rectified when the Alma ordering file is again available.

Invoices will be processed normally in eVA/Banner and forwarded to Accounts Payable.

A copy of the invoice will be annotated with received information. This copy will be kept in a separate file until computer service is restored. At that time, received information will be keyed into the Alma receiving and invoice records.

Print Periodicals receiving will be suspended, except for critical titles, which be recorded in a spreadsheet for later entry into the system. Critical print titles include TML and high-use JBCL titles.

4. **CATALOGING**

**SERIOUS:** If services are expected to be interrupted for less than a week, most regular processing (except rush materials) can be delayed.
Files of bibliographic records from vendors will be retained until the files can be loaded into Alma.

OCLC printouts and Alma arrival forms will be edited for rush items. The printouts will be kept for later Alma online editing, authority work, and OCLC updating. Rush added volumes or copies will be processed with paper records kept for adding later in Alma. Items will continue to be forwarded to Preservation for physical processing.

Manual tasks, such as condensing shelflist files, and retrieving problem items from stacks, will be assigned wherever possible. Staff will also be assigned to assist in other areas of the library as needed.

**WORST:** If the outage lasts beyond a week, backlogs in cataloging will swell to unmanageable proportions. The actions above would continue, plus:

Printouts from OCLC records or from existing Alma arrival forms will be edited for most items in lieu of editing at the workstation. Holdings will be updated on OCLC and printouts will be retained for later Alma editing and authority work. If new items with Alma arrival forms are not available, OCLC records will be searched, printed, and the record saved in a networked file for later transfer into Alma.

5 BINDING AND PRESERVATION

**SERIOUS:** Routine and alternative tasks will absorb an outage for up to 14 days.

Bindery preparation will continue on LARS a pc-based automated binding program. LARS will generate reports of items sent to the bindery. Reports can be initiated at the bindery if the network system is down.

Book repair activities will continue.

Processing for compact shelving will continue.

Changes to Alma will be managed through spreadsheets until the system becomes available.
**CRITICAL:** *Material in need of binding and repair will begin to create backlogs in the event of an outage of up to four weeks.*

Spreadsheets saved to a networked drive will be used to record Alma transactions. Upon return of the system, the data will be uploaded into Alma.

Printout lists of serials sent for binding will be distributed for staff and patrons to consult. Upon return of the system and after the shipment returns, the volumes will be linked and volume records created.

**WORST:** *An outage in excess of four weeks will begin to create severe backlogs and idle departmental staff. Continue with actions as above, plus:*

Items returned from the bindery will be re-shelved. The items will be discharged from the spreadsheet when the system returns.

Binding unit staff will assist with other department activities, if needed.

### 6. CIRCULATION

**SERIOUS:** *In the event of the loss of the system for a single day:*

The Alma circulation client provides an off-line circulation option whereby materials can be loaned as well as returned. This data is stored onto local pc drives and then uploaded once the entire system is online. This procedure has been tested and verified. Return of materials for the general stacks may be deferred until the system returns, creating a shelving back-log.

New user registration forms are accepted and verified through the VCU People search. Materials for new users are circulated with the manual circulation form.

While My Account service is down, users may be directed to the online forms for renewal and item requests.

The following services will be deferred until the system returns: mailing notices (overdues, lost bills, etc.), hold and recall requests, paying fines, online renewals, lost item processing. If the system is down for more than one day, overdue notices and bills will need to
be run manually for each day that the system was down, not relying on the Alma scheduled reports. Patrons will be able to see their current loans in My Account after the system is back online.

**CRITICAL:**  
*Interruption of service for longer than three days, continue with actions as above, plus:*

Evaluate the status of returned Normal Loan material to determine whether to begin using the off-line circulation client to check in items to make them available for use. Evaluation criteria will include anticipated continued system down time, academic calendar, and size of the return back log. The use of minimal work stations and work file sequencing will be key to successful load of off-line files after the return of the system.

**WORST:**  
*Interruption of service for longer than one week, Continue with actions as above, plus:*

The offline data will also be copied from the local pc drive to another location for additional backup.

7. **INTERLIBRARY LOAN LENDING**

**SERIOUS:**  
*If Alma is down for one to three days.*

RDS staff will search WorldCat to determine materials availability and approximate call numbers. Some requests will be cancelled if availability and location cannot be verified. RDS will use Offline Circ to check out materials to borrowing libraries. RDS will date and store materials to be checked in from borrowing libraries.

**WORST:**  
*If Alma is down for longer than three days*

More time will be required to search for materials locations and availability. RDS will alert the ILL community via ILL listservs and ask that requests be submitted to VCUL as the last library in the lending string (entering our symbol twice) and only if no one else owns it. RDS will attempt to fill requests from reciprocal borrowers first. RDS will use Offline Circ to check out materials to borrowing libraries. RDS will date and store materials to be checked in from borrowing libraries.
8. INTERLIBRARY LOAN BORROWING

**SERIOUS:** *Alma down for more than five days*

RDS staff will use VCU eID Query to verify new users and OCLC Resource Sharing/WorldCat to determine materials availability. More student workers will be used to search collections for materials. When materials availability and locations cannot be determined, RDS will order the item.

**WORST:** *If Alma is down for longer than five days*

Document delivery requests will be routed to RDS to determine availability via OCLC Resource Sharing/WorldCat, thus increasing the work load. RDS will not be able to search collections for each request before ordering. Many items may be ordered that were actually available. The cost of ILL borrowing will increase and we may spend more than what was budgeted.

9. DOCUMENT DELIVERY

**SERIOUS:** *Alma is down for five days*

All document delivery requests will be routed to borrowing for searching to determine availability via OCLC. When location and availability is determined, requests will be processed as document delivery requests. Items will also be checked out to the patron manually. Returned materials will be dated and held and stored for check-in once Alma becomes available. If location and availability cannot be determined, request will be processed as an ILL borrowing request.

**WORST:** *Alma is down for more than five days*

It would be extremely difficult to process document delivery requests. Because availability and location may not be determined in many cases, requests will be transferred to ILL Borrowing for processing, thus increasing the Borrowing workload. Courtesy reminders and overdue notice processing would be deferred.
DSpace Disaster Recovery and Contingency Plan

VCU Libraries runs DSpace to house and present VCU’s Electronic Theses and Dissertations (ETD’s). The VCU Graduate School also utilizes the system to accept and approve ETD’s for graduating students. This document describes plans and procedures to be followed in the event of an extended outage (more than one hour excluding 11 p.m. to 6 a.m.) of the DSpace production server at the University Computer Center Pocahontas Building 900 East Main Street (UCC POCA).

Production Posture

Data is backed up per the VCU standard process of TSM with backup tapes housed at Harris Hall in a secure tape vault.

VCU Libraries has a service contract with Longsight for DSpace application assistance that includes emergency support at a billable rate.

Server:
digarchive.library.vcu.edu
Dell PowerEdge 2950
Serial number 5L4LYF1, under warranty (four-hour onsite support)
Location, University Computer Center @ Pocahontas Bldg. Emergency Scenarios and

Anticipated Responses

Local Failure of Server
1. Technical Support investigates and contacts Dell for warranty repair.
2. Technical Support alerts Manager and files Change Management request for any downtime.
3. For any outage longer than 1 hour the Graduate School will also be contacted by Digital Repository Manager.

Failure/Outage at the University Computer Center
1. Technical Support contacts NOC to determine severity of outage.
2. For any outage longer than 1 hour the Graduate School will also be contacted Digital Repository Manager.
3. For outages longer than one week, planning would commence to stand up an alternate server using backup tapes. This process could take weeks.

Recovery Team

Updated March 5, 2013.
The recovery team will be comprised of personnel who have a working knowledge of the existing system and the authority to make decisions and coordinate recovery efforts.

Administrator (John Duke)
- Approves all significant recovery efforts.
- Acts as information officer for rest of library administration.
- Approves purchasing for expenditures associated with recovery.

Manager (Jimmy Ghaphery)
- Maintains and distributes recovery plans.
- Coordinates recovery and testing efforts.
- Logs all events, documents, and expenditures associated with the recovery.
- Delegated “Administrator” responsibility in absence of Administrator.

Digital Repository Manager (Sam Byrd)
- Delegated “Manager” responsibility in absence of Manager.
- Liaison to VCU Graduate School

Technical Support (Larry Ohree)
- Primary technical responsibility for implementation of recovery.

VCU Graduate School (Abbie Handford—primary; Dawn Fields)
- Responsible for receiving and approving ETD's

Contact Information
- John Duke: Senior Associate University Librarian 320-0590, cell 836-0861
- Jimmy Ghaphery: LIS Dept. Head home 675-2485, cell 240-3952
- Sam Byrd: 364-4882
- Larry Ohree: home 226-8354, cell 221-4927
- Lonsight Group (DSpace Support): 740-599-5005, option 1
- UCC Network Operations Center: 828-1802
- VCU Graduate School
  - Abbie Handford 827-4546, cell 714-4325
  - Dawn Fields 827-4551

Manual Contingencies

Submission of ETD’s
Many VCU graduate students must submit ETD’s to fulfill graduation requirements. In the event of a DSpace system failure at the end of a semester, the Graduate School will accept ETD’s on CD or DVD to be loaded into the system at a later date.
Access to ETD's
Doctoral students are required to submit dissertations to Proquest in addition to DSpace. These are available through the internet via VCU subscription. There is currently not an alternative access method for Master's theses outside of DSpace.

Distribution List
VCU Libraries Emergency Preparedness Plan
Library Information Systems
VCU Graduate School
University Computer Center
EzProxy Disaster Recovery & Contingency Plan

Introduction

VCU Libraries runs EzProxy to provide access to online journals, databases, and online course reserves. This document describes plans and procedures to be followed in the event of an extended outage (more than 1 hour excluding 11pm-6am) of the EzProxy production server at the University Computer Center Pocahontas Building 900 East Main Street (UCC POCA).

This plan makes certain assumptions:
1. Network Services are functioning to allow network connections from the EzProxy server out to the Internet.
2. VCU authentication services (e-directory and CAS) are online.

Production and Standby Posture

Data is backed up per the VCU standard process of TSM with backup tapes housed at Harris Hall in a secure tape vault.

Production Server:
billie.uls.vcu.edu 128.172.10.194
Virtual Machine part of UCC managed VM servers Epsilon Cluster
Location UCC POCA

Standby Server:
lena.uls.vcu.edu 128.172.10.149
Virtual Machine part of UCC managed VM servers Beta Cluster
Location Harris Hall

Symbolic link for /ezp/:
Production: /var/local/ezproxy/
Standby: /var/local/ezproxy/

Automated processes are in place to replicate the application on the standby server.

- Servers are kept at same OS level

Updated March 5, 2013.
- Application is at the same level on both servers
- Network access rules are consistent for both servers
- Nightly rsync is used to mirror e-reserve and other public files
  
  **Production**: /ezp/docs/limited/
  **Standby**: /ezp/docs/limited/
- Nightly rsync is used to mirror configuration settings
  
  **Production**: /ezp/ config.txt, users.txt, filters.txt
  **Standby**: /ezp/sendFromBillie

**Failover Process**

1. **DNS Change**: Request via VCUNET: change proxy.library.vcu.edu to resolve to lena.uls.vcu.edu 128.172.10.149

2. **Configuration changes on standby**: Copy files (config.txt, users.txt, filters.txt) from: /ezp/sendFromBillie to: /ezp/

3. Start proxy service on standby:
   
   /ezp/ezproxy start  
   or  
   /ezp/ezproxy restart

4. Install wildcard certificate (note this is not immediately critical as most of the SSL goes through CAS, but the certificate is needed for a few of our databases). A tar file of the sslcert directory from production is located at /ezp/ssl_billie.tar. Backup/move ezp/ssl directory 'mv ssl ssl_bak', then 'tar -xvf ssl_billie.tar' to untar the production certificates into a new /ezp/ssl directory.

Note that if VCUNET is unable to make a dns change, proxy services could be run through the lena dns (with existing ssl cert). Edits would need to be made in the central library servers that point to proxy including Ella (/etc/httpd/vhosts.d/docs.conf SetEnv PROXY_URL) and SFX webadmin.

**Resumptions Plans**

**Resumption Plan A** – The UCC @ POCA is online and billie.uls.vcu.edu is operational with current OS and application.

1. Disable rsync on production
2. Update e-reserve and other public files from standby to production
   i. **standby**: /ezp/docs/limited/
ii. production: /ezp/docs/limited/

3. Update configuration settings from standby to production
   i. standby: /ezp/
   ii. production: /ezp/config.txt, users.txt, filters.txt

4. DNS change from VCUNET. change proxy.library.vcu.edu to resolve to billie.uls.vcu.edu 128.172.10.194

5. Enable rsync from production to standby

Resumption Plan B – The UCC @ POCA is not online or billie.uls.vcu.edu is not able to be restored to current OS and application.

In either of these scenarios, VCU Libraries would need to provision a new proxy production server. Server provisioning could take a considerable amount of time depending on the type of disaster and other priorities for provisioning across the university. During the provisioning period, the standby would continue to provide proxy and reserve services.

Recovery Team

Administrator (John Duke)
- Approves all significant recovery efforts.
- Acts as information officer for rest of library administration.
- Approves purchasing for expenditures associated with recovery.

Manager (Jimmy Ghaphery)
- Maintains and distributes recovery plans.
- Coordinates recovery and testing efforts.
- Logs all events, documents, and expenditures associated with the recovery.
- Delegated “Administrator” responsibility in absence of administrator.

Technical Support (Larry Ohree)
- Primary technical responsibility for implementation of recovery.

Contact Information
- John Duke: Senior Associate University Librarian 320-0590, cell 836-0861
- Jimmy Ghaphery: LIS Dept. Head home 804-675-2485, cell 804-240-3952
- Larry Ohree: home 226-8354, cell 221-4927
- OCLC (EzProxy Vendor): 1-800-848-5800
- UCC Network Operations Center (backups, VM): 804-828-1802
Distribution List

VCU Libraries Emergency Preparedness Plan
Library Information Systems
University Computer Center

MEF III: Protecting the Collections
1. INTRODUCTION

The purpose of this disaster plan is to outline steps of action for a variety of disasters, to describe salvage and recovery operations for fire and water damaged materials, and to provide emergency and recovery services' names and phone numbers.

SCOPE
The plan covers both natural and man-made disasters that damage library materials. The response and salvage guidelines apply to disasters of all magnitudes in all the Libraries' facilities. Salvage guidelines are pertinent only to library materials, not to buildings, supplies, and equipment. The VCU Libraries Emergency Response Plan addresses personal safety for those in the VCU Libraries when a disaster occurs.

Section 2 lists disaster response supplies. Section 3 and 4 outline the initial response steps to recover the physical collection from any disaster or mold outbreak. Sections 5 through 10 define disaster recovery responsibilities and describe salvage procedures.

DISTRIBUTION
Copies of the most recent revision of this plan are kept at work and at home by those listed in Appendix B: Disaster Response Contacts. In addition, an updated plan is distributed to the VCU Division of Facilities Management, the City of Richmond Fire Department, library department heads, and other library staff members upon request.

It is important that all copies of this plan be current. Copies that are not current may perpetuate obsolete information and could jeopardize disaster recovery. The current authorized copy is maintained on the VCU Libraries internal staff website.

LOCAL ASSISTANCE
The Virginia Conservation Association has a Disaster Response Team comprised of local conservators. For assistance, contact Kathy Garrett-Cox at 804-358-7166 (x303) or 804-878-8733. Alternate: Mary Scott Andrews at 804-741-8970 or 804-306-8076.

VCUL is also a member of the Museum Emergency Support Team (MEST) which also offers local assistance. Contact Ken Myers at the Richmond History Center 804-804.649.0711 x 320 or 804.837.1712
2. DISASTER RESPONSE SUPPLIES

GUIDELINES FOR USE
Disaster response supplies are in the Cabell Library in the Preservation Department, room 231. However, the supply of Rescubes™ and water snakes are stored at 500 Academic Center. Supplies are available to respond to limited disasters involving water, such as minor flooding. The Museum Emergency Support Team (MEST) provides supplies shared by its members. The Head of Preservation should be contacted in situations where disaster threatens library materials or other library contents.

SUPPLIES
Disaster response supplies are stored in the Preservation Department:
- plastic sheeting
- towels/rags
- scissors
- flashlights with batteries
- plastic bucket
- copy of Collection Disaster Response Plan
- writing tablets
- markers and pencils
- hammer
- screwdriver
- pliers
- Emergency Response and Salvage Wheel™
- rubber boots
- disposable gloves

3. DISASTER RESPONSE

3.1. Emergency personnel will release the building to the University Librarian or designated authority. The University Librarian will authorize access for recovery of the collections.

3.2. Refer to Appendix D: Salvage Priorities. Do not change the criteria or prioritization at this time.

3.3. Photograph or videotape the damage. See Appendix E: Documenting Damage.

3.4 Consult with the Library Information Systems disaster response team to coordinate assessment phase.

3.5 List necessary supplies, equipment, and services. Give to Assistant University Librarian for Administration and Policy Development to begin collecting and purchasing items. See Appendix C: Salvage Supplies and Services.
3.6 Review list of work to be done from Damage Assessment. Divide the damaged collections among staff for supervision of activities.

3.7 Begin recovery with the first category of priority for recovery. Start with removal of standing water and debris. Remove items first from the floor, then the shelves. When the first priority has been dealt with, move to the second priority.

4. MOLD

4.1. Speed is critical in preventing mold from spreading. Upon the discovery of mold or mildew, call the Head of Preservation. Contact Physical Plant to lower the humidity and increase cool air in the area. Do not use a fan as it will spread the mold.

4.2. Isolate affected materials. Locate a dry area where tables can be set up to treat the books. Put plastic garbage bags over carts while moving moldy books. If a large area is affected, quarantine it by closing doors, hanging plastic sheeting around affected area, and reducing air circulation to the rest of the building.

4.3. Freezing will stop mold growth and kill active mold. It will not kill spores, which will become active again in ambient environmental conditions.

4.4. With the guidance of the Head of Preservation, treat the damaged materials.

5. SALVAGE ADMINISTRATION

This section assigns and defines salvage responsibilities. The individuals, or their alternates, holding the positions listed below have the authority to carry out the assigned tasks. The Recovery Director, at the time of the disaster, will assign other duties. This document provides guidelines for disasters affecting VCU Libraries only. In the event of a local or regional disaster, salvage operations are dependent on University priorities.

5.1. UNIVERSITY LIBRARIAN
The VCU Libraries University Librarian authorizes expenditures, the hiring of temporary staff, and staff overtime. He/she is responsible for all communication with University administration, and all communication with the public and the media on behalf of the University. He/she will coordinate volunteer operations, including requests to volunteer organizations, if necessary, brief the responsible parties within the library on public relations announcements, and determine what back up services, if any, the library will provide.

Alternate: a Director appointed by the University Librarian.
5.2. ASSOCIATE UNIVERSITY LIBRARIAN FOR ADMINISTRATION AND POLICY DEVELOPMENT
The VCU Libraries Assistant University Librarian for Administration and Policy Development is responsible for investigating methods of payment accepted by suppliers, preparing requisitions for supplies and services, purchasing supplies and materials, providing a current and accurate list of library personnel, and establish security with the appropriate law enforcement agency.
Alternate: Accountant, Libraries Business Office

5.3. VCU DIRECTOR OF RISK MANAGEMENT
The VCU Director of Risk Management advises the University Librarian and Recovery Director on insurance coverage (e.g., the types of materials insurance will replace, the salvage expenses insurance will reimburse, and the required documentation and procedures for submitting claims). He/she coordinates activities of insurance representatives, the Richmond Fire Marshall, and other safety inspectors with Recovery Director.
Alternate: designated by the Director of Risk Management

5.4. RECOVERY DIRECTOR (Head, Preservation Department)
The Recovery Director coordinates the overall recovery effort. He/she directs team leaders, works with the University Librarian and the VCU Risk Management Director, interprets salvage priorities, makes salvage decisions, maintains internal communication, and contacts services and consultants.
Alternate: designated by the University Librarian.

5.5. TEAM LEADERS
Team leaders direct the efforts of others during the recovery effort and have previous training. They also train and supervise volunteers.
Alternates: as designated by each team leader

5.6. SALVAGE TEAMS
Salvage teams consist of the Team Leader, one Collection Management librarian, one cataloger, and two other members of the library staff approved by the University Librarian. In a limited disaster, teams alone may perform all salvage operations. In larger disasters, teams train other library staff and volunteers in salvage operations and direct the work of sub-teams. All team members receive regular, periodic training in salvage techniques.

5.7. CONSULTANT
If deemed necessary by the Recovery Director and approved by the University Librarian, a disaster recovery consultant is hired to advise the Recovery Director during salvage operations.
6. SALVAGE PREPARATION

Before actual salvage activity can commence, the following tasks, in priority order, must be completed. Each description includes the appropriate official authorized to carry out the particular task.

6.1. ESTABLISH SECURITY
Responsibility: Assistant University Librarian for Administration and Policy Development
The Assistant University Librarian for Administration and Policy Development arranges for security measures and precautions to protect both the collections and individuals. He/she may consult with VCU Risk Management, VCU Administration, and VCU Security to determine the appropriate measures.

6.2. APPOINT RECORDERS
Responsibility: Recovery Director
The Recovery Director appoints an individual who will be responsible for maintaining a record of recovery activities and decisions. He/she also arranges for photographer(s) to document both the initial inspection and the salvage operations.

6.3. STABILIZE ENVIRONMENT
Responsibility: VCU Facilities Management and Recovery Director
The Recovery Director, with VCU Facilities Management, determines the most appropriate means to cool and ventilate the disaster area. Some or all of the following activities may be considered.
1. Reduce the temperature of the affected area as much as possible (but do not allow water pipes to freeze), by keeping the building’s HVAC system operational and by installing portable air conditioners where necessary.
2. Open windows and doors, and install fans in strategic locations to aid air circulation.
3. Use portable dehumidifiers, where necessary, to reduce the relative humidity.
4. Install portable generators if central power is off. Ground and waterproof all lines.
5. Monitor closely the temperature and relative humidity using data-loggers or other equipment to measure temperature/relative humidity.

6.4. ASSESS DAMAGE / DETERMINE PRIORITIES
Responsibility: Recovery Director, Salvage Team Leaders, VCU Photographer, VCU Director of Risk Management, Head of Collection Management.
After VCU Facilities Management clears the site of any suspected hazards, the Recovery Director, the Salvage Team Leaders, the VCU Photographer, the VCU Director of Risk Management, and the Head of Collection Management review the affected area to determine the scope of disaster. They decide if consultant(s) are needed, determine salvage techniques to use, and assess personnel and supply needs.
Assessment entails close examination of materials to determine the number of items affected and the extent to which they are damaged. Note: Check the interior of books and boxes to determine exactly how wet or burned the materials are. DO NOT simply examine a volume's covers, which can be misleading. The Recovery Director, in consultation with the Head of Collection Management, determines recovery priorities based on the salvage priorities in Appendix D of this plan.

6.5. CONTACT DISASTER RECOVERY SERVICES
Responsibility: Recovery Director.
The Recovery Director and Team Leaders determine the needed services. The Recovery Director consults with the University Librarian to authorize expenditures, the Administrative Services Librarian to determine the method of payment, and the VCU Director of Risk Management to determine the extent of insurance coverage of the chosen services.

Virginia Conservation Association Disaster Response Team
- Kathy Garrett-Cox 804-358-7166 (x303)
- Kathy’s alternate phone number 804-878-8733
- Alternate: Fred Wallace, VCA President 757-591-7752
- Fred’s alternate phone number 757-504-5622

Museum Emergency Support Team
- Lyrasis Preservation Office, 800-999-8558
- Northeast Document Conservation Center, 978-470-1010
- BMS Catastrophe, 800-433-2940

6.6. GATHER SUPPLIES
Responsibility: Recovery Director, Team Leaders, Assistant University Librarian for Administration and Policy Development

The Recovery Director and Team Leaders decide on the necessary salvage supplies and investigate sources for purchase. The Administrative Services Librarian arranges for purchase through requisition or authorizes direct purchase. Note: Until supplies arrive, limited salvage may begin using supplies from the Libraries Preservation Department. Following is a list of supplies that may be necessary to buy. The list is arranged by suggested sources.

6.6.1. Supermarket

Updated March 5, 2013.
a. Freezer paper or wax paper
b. Paper Towels
c. Sponges
d. Plastic Trash Bags
e. Buckets

6.6.2. Office Supply Store (VCU, Contract Office Supply company)
a. Identification badges for recovery workers
b. Writing pads and ball point pens
c. Staplers and staples
d. Tape and scissors
e. Calculator
f. Blotting Paper
g. Blank newsprint

6.6.3. Hardware Store
a. Flashlights
b. Batteries
c. Gloves
d. Mops and buckets
e. Plastic Sheeting (heavy)
f. Packing tape
g. String
h. Large trash cans

6.6.4. Media General
a. Un-printed newspaper (inquire about free newsprint before purchasing)

6.6.5. Refuse Companies (BFI, Bay Disposal, Cox)
a. Dumpsters and hauling

6.7. ESTABLISH SALVAGE HEADQUARTERS
Responsibility: University Librarian, Recovery Director, Team Leaders

6.7.1. Major Disaster
If a major disaster strikes the Libraries, the University Librarian consults with University Administration to decide the best location for salvage operations headquarters. The Libraries has tentative arrangements with the following locations, but the University Librarian must make final arrangements as needed. All arrangements described here apply to disasters affecting only a library facility. Other possible locations include: Hibbs Hall, Rhoads Hall and the Richmond Landmark Ballroom.
6.7.2. Limited Disaster
In a limited disaster the responsible parties make every attempt to identify an area in library facility to conduct salvage operations. The area must be unaffected by the disaster, must be cool and well ventilated, and must accommodate air-drying of the damaged materials.

6.7.3. Establishing the Site
Salvage headquarters must be equipped with working telephone(s) and electric power. The Recovery Director arranges to have library catalog terminals installed if they are not present or additional terminals connected, if too few are available for the quantity of materials to be processed. In addition, the Recovery Director and Team arrange for an adequate number of tables, chairs, shelves, and photocopiers to be delivered. Finally, they establish an area for staff breaks with coffee pot, snacks, and chairs.

6.8. ESTABLISH COMMUNICATIONS
Responsibility: Recovery Director.
The Recovery Director determines the most appropriate method of maintaining communication among salvage headquarters, team leaders, the University Librarian, the Communications and Public Relations Director and the Assistant University Librarian For Administration and Policy Development. If telephones are unavailable, couriers and walkie-talkies may be used.

6.9. ARRANGE FOR TRANSPORTATION
Responsibility: Recovery Director.
The Recovery Director determines the most appropriate form of transportation and arranges for removal of materials off site, if necessary. If available and adequate, the Libraries vans are the first choice. For removal of larger quantities of materials to local off-site freezer storage, the Recovery Director investigates the use of other University or State vehicles. For long-distance hauling of materials to a freeze-drying facility, he/she contacts the firm of choice to arrange for transportation.

6.10. PREPARE IDENTIFICATION
Responsibility: Team Leaders.
Team Leaders establish a consistent means of identifying salvage personnel and other officials for security purposes. They may consider color-coded badges for various levels of authority.

7. SALVAGE AND REHABILITATION OPERATIONS

7.1. REMOVE MATERIALS

Updated March 5, 2013.
After VCU Facilities Management declares the disaster area free of hazards and after the Recovery Director, the Salvage Team Leaders, the VCU Photographer, and the VCU Director of Risk Management have assessed the damage and assigned priorities, salvage teams begin recovery operations. All salvage workers, including volunteers, must belong to a team. Workers may remove materials only with the approval of their Team Leader.

Within the salvage priorities, specific items may deserve higher priority than others. The Collection Management librarian on each team makes ad hoc decisions about individual items. For example, high priority items might include those that have developed mold, leather bound books, parchment and vellum materials, artifacts, manuscripts, and materials with coated paper.

7.1.1. General rules for removing damaged materials

1. Start with those items immediately blocking main entrances and exits and gradually work towards the interior and into the stacks. This speeds up traffic flow and prevents further damage to materials "in the way".
2. Deal then with those items on the floor and those blocking work spaces. This, too, helps speed up the evacuation process and keeps materials from being stepped on.
3. Clear bookshelves from the bottom up. Usually items on lower shelves are the wettest and most vulnerable to further damage. Be careful, however, of top-heavy shelves; they may tip over causing possible injury to workers and further damage to materials.
4. Handle all wet materials with care. Many are more fragile than they may at first appear.
5. Never squeeze thoroughly soaked books to remove water. This may permanently "glue" the pages into blocks.
6. Leave books shut. Opening may permanently damage them.
7. Remove damaged materials from the disaster area as rapidly as possible. Place books in boxes spine down, one book deep. Avoid over-packing materials into boxes. This may cause materials to tear apart or warp. Remember, too, that wet books are heavy. Rescubes are especially designed boxes for moving wet library materials. They should be used first.
8. Transport boxes on movable pallets if lifting machinery is available.
9. Group boxes outside the disaster area in small units to allow a free flow of air around the materials until the materials can be examined to determine rehabilitation method. Unless the boxes are needed immediately to remove other materials, leave the evacuated materials in those boxes for further processing.

7.1.2. Special Rules
Documents (loose papers)

1. Do not disturb damp or wet documents or other loose papers, whether strewn or in piles, until the librarian responsible for the documents examines them and authorizes evacuation or other special treatment.
2. Leave all materials as grouped in their original folders, drawers, or other storage containers.
3. Whenever possible use the original containers to remove materials for further treatment. Filing cabinets, for example, can be removed drawer by drawer.
4. Never try to drain storage containers by turning them upside down.

Coated Paper
1. Segregate these volumes for immediate freezing or freeze-drying. Their successful restoration is directly proportional to the rapidity with which they are treated.
2. Be particularly careful not to squeeze or bend volumes since these materials are even more fragile than books of standard paper.

Audio-Visual Formats
1. Remove audio-visual formats in their storage containers or drawers as is feasible.
2. Do not drain water-filled containers.
3. In most cases remove water-soaked film materials (e.g., loose tapes and slides found on the floor) in a water-filled shallow tray, pail, or similar container rather than let them dry out. Do not stack them or allow unwound tapes to tangle further.

7.2. CLEANING/WASHING MATERIALS

Clean soiled materials only under the following guidelines. When in doubt, do not clean or wash soiled materials; most dirt can be removed after an item is dry.

7.2.1. Damp Books and Documents
1. Gently brush dry dirt and ash from library materials using large brushes, cheesecloth, or dust rags.
2. Wipe off with gentle strokes before air-drying books and other media that are merely damp; however, never wash materials that are merely damp. Dry mud and heavy soot should be left for professional cleaning later in the recovery process.

7.2.2. Soaked Books and Documents
1. Wash very muddy, soiled books that are already soaked. The procedure for cleaning and "washing" closed books involves a cycling process using a series of four to eight washing tanks (e.g. 100 liter or 20+ gallon bins) containing clean water. Do not use soap or other cleaner. Closed books should be held firmly shut with fore edge down and dunked to remove mud, silt, or wet ash and by sponging with a dabbing motion. Do not rub; let the water do the work! Brushing or rubbing may push dirt into the binding or bruise or tear the paper.
2. Do not wash books with coated paper or special inks. Freeze them immediately as they are.
3. Never wash documents, manuscripts, and other loose papers; air-dry them as soon as possible.
4. Carefully rinse muddied photographs that are already soaked in vats of clean water. Never rub them to remove soil; this will only damage the pictures more.

7.2.3. Soiled Audio-Visual Materials

1. Wash tapes, films, and other audio-visual formats that cannot be easily replaced by immersing them in clean water. Gently swirl them until most of the soil has come off.
2. Do not wash materials of questionable value or that can easily be replaced.

8.3. DETERMINING REHABILITATION METHODS

There are several techniques for rehabilitating damaged library materials. The technique or combination of techniques to be used is based upon several factors: the extent or seriousness of the damage, the quantity of materials involved, weather conditions, the cost, and the extent of insurance coverage.

There are certain recognized guidelines for deciding treatments based on the fragility of the library materials themselves. For example, to attain a reasonable rate of successful salvage of coated paper materials, one must either freeze them immediately or send them to be professionally treated or have them professionally freeze-dried from the start. The same is true for most books that have been thoroughly soaked, even those of sturdier paper.

Air-drying can be successful for most damp materials including documents, photographs, and manuscripts as well as books. It is difficult, however, to air-dry vast numbers of books, given space limitations and the large amount of time often needed to completely dry them. Usually the air-drying method is recommended for quantities of 500 volumes or less. For larger disasters, immediate freezing and eventual freeze-drying are recommended.

Following are general guidelines for making quick rehabilitation method decisions.

Coated Paper. If the leaves of a wet volume with coated paper have not adhered to each other, freeze the volume with coated paper immediately. If it cannot be immediately frozen, set it aside. When freezing is possible, reexamine such volumes. Freeze them only if their leaves can be separated. Otherwise, withdraw them from the collection.

Under 500 Volumes. If 500 or fewer volumes are water damaged, air dry damp volumes with uncoated paper. Vacuum freeze-dry soaked volumes and volumes with coated paper.
Over 500 Volumes. If more than 500 volumes are water damaged, freeze them as soon as possible. Freezing stabilizes materials and prevents mold growth. The volumes can be removed from freezer storage and reviewed for rehabilitation at a programmed pace.

Audio-visual Materials. Clean and air dry wet negatives, slides, audio tapes, video tapes, floppy diskettes, and sound recordings, if they are not warped, distorted or totally damaged, and cannot be easily replaced.

Fire Damage. Rebind volumes whose only damage is charred spines and edges, if the inner text block is undamaged and the paper has not turned brittle. Otherwise, withdraw fire damaged volumes.

Smoke Damage. Clean with chemical sponges smoke damaged volumes, if the total number of such volumes is manageable. Otherwise, contract a smoke rehabilitation firm that specializes in library materials.

Withdraw. Some types of materials, when damaged, can be immediately withdrawn from the collection, with the permission of the Collection Management librarian team member. For example, in most cases withdraw paperback and other popular materials. Also, discard hardbound books that have been virtually consumed. Exceptions may be rare books or books otherwise of great value of which some usable parts may remain. Audio-visual materials of all formats should be discarded if they can be easily replaced.

8.4. KEEP RECORDS
Accurate records stating the location/disposition of materials are necessary for both salvaged and withdrawn materials. If the library’s automated system is available, Automation Services will set up work stations in the salvage area. Temporary Alma locations or statuses will be created based on the rehabilitation method or disposition.

After retrieving materials from the disaster area and making rehabilitation decisions, record their new locations/statuses in Alma. If the library’s system is not available, manually record the item numbers by rehabilitation category. When Alma is available, record the temporary locations/statuses. For uncataloged portions of the collection (manuscripts, archives, government documents, new gifts, and new acquisitions), enter provisional records in Alma, if available, or manually record the author, title, publisher and date of each item.

8.5. AIR DRYING

8.5.1. Books
1. Carefully open the volume at not more than a 30 degree angle. Place wax paper between the covers and end leaves to prevent bleeding from the binding. Interleave absorbent paper towels
every 25 or 50 pages. Note: If the volume has coated paper, but is still to be air dried, interleave paper towels between every leaf.
2. Place each volume on a table or large surface. Set up fans to ensure a steady current of circulating air. Stand the volume on its head and fan it open slightly. Use bricks or other supports, if necessary, to prop it open. Change the interleaved paper towels when necessary.
3. When the volume is dry, lay it flat and place weights on them to minimize distortion. Do not stack volumes that are still wet.

8.5.2. Documents and Unbound Materials
Leave documents and unbound materials in their file cabinet drawers, document cases, or folders until each document can be treated individually. Do not turn the containers upside down to drain. To dry them, follow this procedure:

1. Place a sheet of polyester film on top of each wet sheet of paper.
2. Rub the polyester film gently with a bone folder until surface friction causes the wet paper to adhere to the polyester film.
3. Use the polyester film to pick up the wet paper and place it onto a piece of polyester web.
4. Gently remove the polyester film and replace it with another piece of polyester web on top of the wet paper.
5. Repeat the entire process, separating the wet sheets one at a time and interleaving them with sheets of polyester web.
6. Air-dry the sheets by placing them on flat surfaces. Fans should not blow air directly onto these materials.
7. When the papers are almost dry, flatten them by placing them between layers of blotting paper. Set weights on top in such a way to apply even pressure.

8.5.3. Microforms
Keep silver halide microfilm under water and send it to a professional microprocessing laboratory as soon as possible. Wash vesicular and diazo microfilm under cold, clean water to remove mud and dirt. Then suspend it to air dry. Keep microfiche under water and send to a professional microprocessing laboratory as soon as possible.

8.5.4. Tapes and Floppy Disks
Open the cassettes or sleeves to remove the tapes and diskettes. Wash them in clean or distilled water. Do not rub them to remove soil. Lay them flat or suspend them to dry. Sometimes cheesecloth may also be used to wipe off excess water. Discard the protective cassettes and sleeves.

8.5.5. Sound Recordings (LPs, CDs, DVDs)
Wash in clean, cold water and wipe dry with cheesecloth. Discard the jackets and cases.
8.5.6. Other Non-book Materials
Remove from their protective covers photographic materials such as prints, negatives, slides, and films while still wet. Wash off soil by immersing or rinsing in clean, cold water. Air dry them either on a flat surface or suspended from lines.

8.6. PACK/SHIP MATERIALS

Pack materials to be sent to freezer storage or a freeze drying facility according to the following guidelines:

1. Use Rescubes first. If the supply runs out, use sturdy cardboard boxes.
2. Carefully wrap books (including those that have been washed to remove mud and silt) like packages in waxed paper. Place wax paper between covers and end pages to prevent cover dye bleeding, if the covering material is dark cloth.
3. Place books into the boxes one layer deep, spine side down. If this is not possible, do not overfill or cram crates since wet books are heavy and expand considerably when wet.
Ship the packed boxes as rapidly as possible to local commercial freezing or freeze-drying services. Some firms may provide refrigerator/freezer trucks on site as part of their service.

8.7. RETURN MATERIALS

When the library building has been restored, its environment has been stable for several days (see section 10: COMPLETION OF RECOVERY), and the shelving areas are completely dry, clean, and sterilized (see section 9: FUMIGATION, CLEANING, AND STERILIZATION), return rehabilitated materials to their shelves. Double check the materials themselves, including both air-dried and freeze-dried books, to see that pages are not brittle, that books can still be opened and read and are completely dry, that bindings are intact, and that no mold has formed. Many books that appeared fine while damp will have warped covers when dry. Some books may require special conservation work. Many will probably have to be rebound.

Sort in call number order those materials that are ready to be reshelved. Reshelve the materials section by section. Return the Alma locations/statuses to their proper values.

9. FUMIGATION, CLEANING, AND STERILIZATION

9.1. FUMIGATION

Fumigation is not recommended except for valuable and irreplaceable materials. A consultant may be necessary to decide on the type of fumigation appropriate to the situation. All fumigation must be done off-site by a licensed fumigator.
9.2. CLEANING AND STERILIZATION

The affected area must be cleaned and sterilized whether or not mold is observed. The possibility of mold growth in a flooded area is too great not to take this precaution. Follow these procedures to ensure thorough destruction of mold spores:

1. Remove window hangings and sterilize them. Launder curtains after sterilization.
2. Remove all materials from the area except shelves and major pieces of furniture.
3. Provide additional air circulation by setting up portable fans to hasten evaporation.
4. Thoroughly wash floors, ceilings, walls, shelves, and remaining furniture with a germicidal cleaner. Include the corners, backs, and bottoms of shelves. Use disposable materials to clean and wipe to prevent the spread of contamination.

10. COMPLETION OF RECOVERY

10.1. BUILDING INSPECTION

Before materials are reshelved, the building and its support systems must be tested operational. The following areas must be investigated, as appropriate to the disaster.

1. Heating, ventilation, and air conditioning system, including the temperature and relative humidity sensors
2. Water, sewage, electricity, gas, and telephones
3. Fire detection systems
4. Security system
5. Building structure

10.2. BUILDING ENVIRONMENT

Before returning materials to the affected area, the environment must prove to be stable over the course of several consecutive days. The relative humidity in all areas of the building should be between 45% and 55%. The temperature should be between 68 and 72 degrees. The Libraries dataloggers and thermometers will measure these factors. The environment must be monitored regularly (at least once a week) for no less than six (6) months.

If building or equipment repair is necessary in a shelving location, it should be completed before materials are reshelved.

10.3. WRITTEN REPORT

The Collection Disaster Preparedness Work Group writes and submits to the VCU Libraries a detailed report of the disaster and the response. The report includes:

Updated March 5, 2013.
1. Sequence of events.
2. Description of damage to library materials.
3. Cost of the recovery effort, including rehabilitation and replacement of materials costs and staffing costs.
4. Recommendations for future action.

10.4. EVALUATION AND REVISION OF PLAN

When recovery operations are complete, the Work Group evaluates the recovery effort, reviews the recorders’ written logs and photographs, and revises the Disaster Plan as necessary.

10.5. PERIODIC EXAMINATION OF SALVAGED MATERIALS

The salvage team checks rehabilitated volumes for mold growth at regular intervals for one year after the disaster. A representative sample of volumes is sufficient to determine if mold is a problem. Examination includes inspection of the inner spine, the inside covers, and the flyleaves. Fanning all leaves of a volume will quickly reveal if mold has grown in the text block. Books with mold must be immediately segregated from the rest of the collection in sealable plastic bags. The preservation librarian determines whether the volume can be saved or must be withdrawn.

A moldy book will leave mold spores on whatever it touches, including adjacent books and the hands of those who touch it. Disinfecting shelves, washing hands, and carefully examining adjacent books are required procedure when mold is observed.
## APPENDIX A: LOCAL EMERGENCY SERVICES

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCU Fire</td>
<td>828-1234</td>
</tr>
<tr>
<td>VCU Security</td>
<td>828-1234</td>
</tr>
<tr>
<td>VCU Facilities Service Center</td>
<td>828-9444</td>
</tr>
<tr>
<td>VCU Office of Environmental Health and Safety</td>
<td>828-9834</td>
</tr>
<tr>
<td>Richmond Fire Department</td>
<td>828-1234</td>
</tr>
<tr>
<td>Richmond Police</td>
<td>828-1234</td>
</tr>
<tr>
<td>Richmond Gas and Water Service</td>
<td>644-3000</td>
</tr>
<tr>
<td>Ambulance</td>
<td>828-1234</td>
</tr>
<tr>
<td>Dominion Virginia Power</td>
<td>888-667-3000</td>
</tr>
</tbody>
</table>
APPENDIX B: DISASTER RESPONSE CONTACTS

AREA CODE 804 UNLESS OTHERWISE INDICATED.

<table>
<thead>
<tr>
<th>Name and Title</th>
<th>Home Phone</th>
<th>Work Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Librarian, VCU Libraries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>John Ulmschneider</td>
<td>329-8271</td>
<td>828-1107</td>
</tr>
<tr>
<td>Senior Associate University Librarian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>John Duke</td>
<td>320-0590</td>
<td>828-1100</td>
</tr>
<tr>
<td>Director for Tompkins-McCaw Library and Associate University Librarian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teresa Knott</td>
<td>836-5331 (c)</td>
<td>828-0634</td>
</tr>
<tr>
<td>Associate University Librarian for Public Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dennis Clark</td>
<td>979-229-9082 (c)</td>
<td>828-9136</td>
</tr>
<tr>
<td>Associate Librarian for Admin and Policy Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeanne Hammer</td>
<td>434-989-1307 (c)</td>
<td>828-1116</td>
</tr>
<tr>
<td>Head of Preservation &amp; Inventory Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patricia Selinger</td>
<td>267-1611</td>
<td>267-1611</td>
</tr>
<tr>
<td>VCU Risk Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>David A. Mattox</td>
<td></td>
<td>828-7531</td>
</tr>
<tr>
<td>VCU Environmental Health &amp; Safety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Dean Broga</td>
<td></td>
<td>828-5877</td>
</tr>
</tbody>
</table>

Updated March 5, 2013.
## APPENDIX C: SALVAGE SUPPLIES AND SERVICES

<table>
<thead>
<tr>
<th>Service or Supply</th>
<th>Name</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building repair</strong>, electrician, plumber, carpenter, locksmith, glazier, portable generators, portable lights, portable pump, heavy duty extension cords, dehumidifiers, walkie-talkies, hand trucks, pallets, and environmental monitoring</td>
<td>VCU Physical Plant Operations</td>
<td>828-7250</td>
</tr>
<tr>
<td></td>
<td>David Cooper, Academic Campus Coordinator</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MCV Campus Coordinator Physical Plant</td>
<td>828-7248</td>
</tr>
<tr>
<td><strong>Consultants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lyrasis Preservation Field Services</td>
<td>800-999-8558</td>
</tr>
<tr>
<td></td>
<td>CCAHA (Ctr for the Conservation of Art and Historic Artifacts, Philadelphia)</td>
<td>215-545-0613</td>
</tr>
<tr>
<td></td>
<td>Mary Scott Andrews, Conservator</td>
<td>741-8970</td>
</tr>
<tr>
<td></td>
<td>NEDCC (Northeast Document Conservation Center, Boston)</td>
<td>978-470-1010</td>
</tr>
<tr>
<td><strong>Fans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plastic sheeting</strong></td>
<td>Pleasant's Hardware</td>
<td>359-9381</td>
</tr>
<tr>
<td></td>
<td>2024 West Broad Street</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lowe's</td>
<td>219-0640</td>
</tr>
<tr>
<td></td>
<td>1640 West Broad Street</td>
<td></td>
</tr>
<tr>
<td><strong>Cardboard boxes</strong></td>
<td>Atlantic Corrugated Box</td>
<td>231-4050</td>
</tr>
<tr>
<td></td>
<td>1701 Ruffin Road</td>
<td></td>
</tr>
<tr>
<td></td>
<td>U-Haul</td>
<td>358-4978</td>
</tr>
<tr>
<td></td>
<td>900 N. Lombardy Street</td>
<td></td>
</tr>
<tr>
<td><strong>Blank newsprint</strong></td>
<td>Media General</td>
<td>649-6000</td>
</tr>
<tr>
<td><strong>Freezer storage</strong></td>
<td>VCU Dining Services</td>
<td>828-1147</td>
</tr>
<tr>
<td></td>
<td>Milk crates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jean Clark, Manager</td>
<td></td>
</tr>
</tbody>
</table>

Updated March 5, 2013.
<table>
<thead>
<tr>
<th>Service</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mass freezer storage</strong></td>
<td>Richmond Cold Storage, 644-2671</td>
</tr>
<tr>
<td></td>
<td>Library of Virginia, Tom Camden, 692-3706</td>
</tr>
<tr>
<td><strong>Building blueprints</strong></td>
<td>VCU FMD Planning &amp; Design, Carl Purdin, 828-0391</td>
</tr>
<tr>
<td><strong>Chemist</strong></td>
<td>VCU Chemical/Biological Safety, David Jones, 828-4866</td>
</tr>
<tr>
<td><strong>Exterminator</strong></td>
<td>VCU Facilities Management, 828-9444</td>
</tr>
<tr>
<td><strong>Dehumidification</strong></td>
<td>Service Master (local), 285-4909</td>
</tr>
<tr>
<td></td>
<td>Servpro (local), 740-6151</td>
</tr>
<tr>
<td>Freeze drying, vacuum drying,</td>
<td>Library of Virginia Records Center, 692-3706</td>
</tr>
<tr>
<td>smoke removal, fumigation and</td>
<td>BMS Catastrophe, 800-433-2940</td>
</tr>
<tr>
<td>sterilization</td>
<td></td>
</tr>
<tr>
<td><strong>Collection relocation</strong></td>
<td>Kloke Group, 804-233-2217</td>
</tr>
<tr>
<td>**Damage appraisals, Odor</td>
<td>BMS Catastrophe, 800-433-2940</td>
</tr>
<tr>
<td>removal, Document restoration</td>
<td></td>
</tr>
<tr>
<td><strong>Smoke damage rehabilitation</strong></td>
<td>Service Master (local), 285-4909</td>
</tr>
<tr>
<td>Chemical sponges</td>
<td>Servpro (local), 740-6151</td>
</tr>
</tbody>
</table>
APPENDIX D: SALVAGE PRIORITIES

VCU Libraries salvage priorities lists collections and parts of collections in the order in which salvage teams would perform their operations. The list separates the two major branches, Tompkins-McCaw Library and James Branch Cabell Library, since only regional or national disasters would affect both. Within each branch, a floor-by-floor approach defines the priorities of limited disasters and provides specific guidelines for a general disaster. The general disaster priorities focus on the branch's entire collection and resolve conflicts when a limited disaster is not limited to one floor.

D.1. TOMPKINS-MCCAW LIBRARY

D.1.1. LIMITED DISASTER (TML)

D.1.1.1. Basement (TML)
1. Special Collections: archives, manuscripts, and photographs
2. Special Collections: medical artifacts
3. Stack Level A Theses and Dissertations and other Special Collections books and University publications
4. Stacks levels A and B: bound periodicals and Basement
5. Special Collections: portraits
6. Media Collection
7. Microforms Collection
8. Documents GPO monographs and serials

D.1.1.2. First floor (TML)
1. Reference Collection
2. Special Collections Reference Collection and microforms
3. Stacks levels C: bound periodicals
4. Special Collections: portraits
5. Reference: abstracts and indexes
6. Current Periodicals
7. Circulation: reserve collection

D.1.1.3. Second floor (TML)
1. Special Collections: pre-1910 imprints (Room 2-020)
3. Special Collections: portraits
4. Stacks: classified general collection

D.1.2. GENERAL DISASTER (TML)
1. Special Collections: archives, manuscripts, and photographs

Updated March 5, 2013.
2. Special Collections: pre-1910 imprints
3. Stacks and Basement: bound periodicals
4. Portraits
5. Special Collections: medical artifacts
6. Reference: monographs
7. Stacks: classified general collection
8. Media
9. Current periodicals
10. Circulation: reserve collection
11. Government Documents

D.2. CABELL LIBRARY

D.2.1. LIMITED DISASTER (CABELL)

D.2.1.1. Basement (Cabell)
1. Room B8: Special Collections storage
2. Room B47: compact storage

D.2.1.2. First floor (Cabell)
1. Bound journals
2. Current periodicals
3. Circulation: reserve collection
4. Reference: major serials
5. Reference: indexes and abstracts section
6. Reference: all other classifications
7. Reference: bibliographies section
8. Documents: GPO monographs
9. Documents: GPO serials
10. Documents: state and municipal collections

D.2.1.3. Second floor (Cabell).
1. Room 235A: Special Collections Storage—University Archives Records Groups (west wall of Learning Commons)
2. Room 230/231: Special Collections in process (green flags)
3. Room 235B: Clark Jazz Collection (west wall of Learning Commons around corner from 235A)
4. Room 230: New receipts in Acquisitions, Cataloging, Preservation
5. RDS: ILL books, DVDs, journals

D.2.1.4. Third floor (Cabell)
1. Stacks

Updated March 5, 2013.
a. A 
b. G 
c. H-HJ 
d. HM-HX 
e. C-F 
f. B 
g. K 
h. J 
i. M 
j. L 
k. Oversize 

2. MRS: reserve collection 
a. MRS: media (DVDs, VHS, slides, films) 
b. MRS: recordings and compact discs 
c. MRS: scores 
   3. Microforms: serials 
   4. Microforms: commercial microforms 
   5. Microforms: GPO microforms 
   6. Microforms: patent microfilm 

**D.2.1.5. Fourth floor (Cabell)**

1. Special Collections: archives, manuscripts, and photographs 
2. Special Collections: Johnson/Boswell collection 
3. Special Collections: Book Art 
4. Special Collections: Cabell collection 
5. Special Collections: Secured collection 
6. Special Collections: Clark jazz collection 
7. Stacks 
   a. N 
   b. TR 
   c. P 
   d. M 
   e. Z 
   f. Q 
   g. S-T (except TR) 
   h. R 
   i. U-V 
   j. JUV & YA 

**D.2.2. GENERAL DISASTER (CABELL)**

Updated March 5, 2013.
1. 4th floor: Special Collections
   (including storage areas B8 & 235, and materials in process in 230 & 231)
2. 3rd floor: MRS: recordings and compact discs
3. 3rd floor: MRS: scores
4. 4th floor: Stacks: classification N & Art Browsery
5. 3rd & 4th floor: Stacks: other classifications
6. 3rd floor: Microforms: Serials
7. 1st floor: Documents: state and municipal collections
8. 3rd floor: Microforms: GPO microforms
9. 1st floor: Reference collections
10. 1st floor: Documents: other collections
11. 3rd floor: MRS: other collections
12. 1st & 3rd floor: Reserves (3rd floor MRS & Circulation Desk)
13. 1st floor: Current periodicals
14. Basement: Room B47: compact storage
Photograph or videotape the damage for the insurance adjuster. It is not always necessary for the adjuster to be present when you begin the response and recovery phases of disaster response. It is necessary that the insurance company be aware that the disaster occurred and that the disaster response team knows what can and cannot be done within the policy’s terms.

While documenting damage, check collections against the Salvage Priorities in Appendix D. Document the affected area and the surrounding areas. If using a video camera, use slow, steady pan shots and slowly increase close up shots. Forms can also be used to document damage.