Standard Operating Procedure—Speciation Data Processing Disaster Recovery Plan

Environmental Industrial Sciences Division
RTI International*
Research Triangle Park, North Carolina

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RTI INTERNATIONAL

* RTI International is a trade name of Research Triangle Institute.

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Scope

RTI has designed and maintained a database to compile, process, archive, and report $PM_{2.5}$ speciation data to the U.S. Environmental Protection Agency (EPA) under RTI projects 07565, 08166, 08604, and 08858. This standard operating procedure (SOP) describes the plans and procedures to preserve and recover chemical speciation data, computer hardware, and data processing software after an outage or disaster. This plan is intended for use only by RTI personnel and should be considered RTI confidential. Persons authorized to view this plan are listed, along with their responsibilities, in Appendix A of this SOP.

Overview

The scope of recovery activities will depend on the nature of the disaster. Recovery actions are discussed in the following sections that refer to the affected system. Response to an actual disaster may require implementing multiple sections of this SOP.

Facility Recovery

Loss of facilities or loss of use of facilities could be due to a variety of causes, including fire, inclement weather (e.g., floods, hurricanes, tornados), extended power failure, failure of heating or air conditioning systems, and chemical or biological contamination.

RTI maintains a Safety and Security staff who are responsible for patrolling buildings on a regular basis (including nights, weekends, and holidays). In addition, the Facilities and Maintenance staff is on call 24 hours per day/7 days per week to respond to emergencies, such as flooding or other damages to the buildings. Contact information is included in Appendix A of this SOP.

If there has been damage to the facilities, RTI security will notify the Information Technology Services (ITS) Server Administrator (see Appendix A of this SOP for contact information). The ITS Server Administrator will assess the damages and determine the scope of recovery operations. If the building could be safely entered, then surviving equipment will be relocated to another building and set up for operation (as described under the other sections of this plan). All of RTI's buildings in the Research Triangle Park, NC, area are connected to the internal Ethernet, and a relocated server could be immediately operable.

If equipment was substantially damaged, then arrangements will be made to relocate activities on other RTI servers and/or acquire new hardware.

In addition to the activities described in this plan, RTI's overall contingency plan (maintained by the RTI Safety and Security Office) includes provisions for long-term and/or severe damages to

facilities, along with general business interruption insurance. These provisions would be automatically implemented by RTI's Facilities and Maintenance and Security departments, if conditions warrant.

Network Recovery

RTI's ITS Department maintains a staff of network personnel who are on-call 24 hours per day/7 days per week. They would be notified (see Appendix A for contact information) in case of problems with network activities should arise. Their activities would proceed according to RTI's ITS Department's Business Continuity Plan (maintained by Anne Derby in Little 201). Disturbances to part of the network (such as the link between the Sample Handling and Archiving Laboratory [SHAL] facilities at Regent Place and RTI's main campus) can be worked around by either temporarily moving SHAL processing to the main campus or by moving the server to Regent Place (if a Microsoft Windows domain server is available there).

Hardware Recovery

1. SHAL Processing Machines
   There are approximately 20 processing machines in the SHAL. Loss of one or even a few of these machines at the same time would not shut down SHAL operations. Recovery of these machines would be performed by the Desktop Support staff (see Appendix A for contact information). In addition to the machines in the SHAL, RTI staff in multiple buildings are currently operating many other suitable machines that could be used for SHAL processing in an emergency. Any machine running Microsoft Windows 2003 and Microsoft Access (Office) 2003 could be used as a temporary replacement, if needed. Should the need arise, the Desktop Support staff will contact Department, Center, and Division Managers to identify alternate equipment.

2. Bar-Code Scanners
   Bar-code scanners are used with each processing machine to improve productivity. These scanners are inserted into the keyboard cable and are transparent to the system (i.e., data appears as if they were entered on a keyboard). In an emergency, the keyboard could be used for any entry that would normally use the bar-code scanner.

3. Database, File, and Print Servers

   RTI's ITS Department maintains a staff who are on-call 24 hours per day/7 days per week. They would be notified (see Appendix A for contact information) in case of problems with server activities. Their activities would proceed according to RTI's ITS Department Business Continuity Plan.

4.   External Web Server for Remote Data Access (GEOS1)
Currently, the external Web server (GEOS1) is used for state and
local data contacts to download their monthly data reports. Copies
of these reports are also maintained on RTINTS76 (for internal
use). In an emergency, these copies could be placed on any of the
external servers that are maintained by RTI's ITS Department, and
the users would be notified of the new site location.

5.   Printers
The following three types of printers are used for speciation data
processing:

- Laser printers for printing of module assembly forms and reports. Large
numbers of the laser printers are being used at RTI, and another one could
easily be substituted for one that is currently in use.

- Epson and C-Itoh C-650 dot-matrix impact printers for printing on multi-copy
carbonless paper (custody forms and incoming air bills). There are currently
four printers in use in the SHAL (two preloaded with 8.5" x 11" paper and two
preloaded with FedEx air bills). An additional dot-matrix impact printer is
used in Building 7 for printing sample custody forms. In case of failure of any
one printer, the remaining printer would be used until a replacement printer
could be ordered.

- Zebra bar-code label printer. One bar-code printer is currently used in the
SHAL for printing inventory and aliquot labels. A second printer is used in
Building 7. In case of failure of the SHAL printer, the printer currently in
Building 7 would be moved to the SHAL and used for both facilities until a
replacement could be ordered.

6.   FedEx Powership System
Currently, RTI is using a FedEx-owned Powership system for printing of bulk
outgoing air bills. A second unit (differing only in its shipper ID) is also in use in
RTI's main mail room and could serve as a backup unit (after the default ID was
changed in the Powership Program used by the SHAL). If both systems were
simultaneously unavailable, FedEx's Internet-based shipping system could also
be used in an emergency.

Software Recovery

1.   SHAL Processing Machines
There are approximately 20 processing machines in the SHAL. Loss of one or
even a few at the same time would not impact SHAL operations. No special
software is installed on these machines (other than a shortcut to the main
application [EPA_SPEC.ade]). Recovery of the operating system and Microsoft

Office 2003 software would be performed by the Desktop Support staff using software that is kept on a secured server by RTI's ITS Department.

2. Database and File Server (RTINTS76)
This server is backed up nightly by ITS staff as part of their normal operating procedures (SOP S0011-01: NT Server Data Backup and Storage of Backup Media, which is available on RTI's internal Web site).

Data Recovery

1. SHAL Processing Machines
No data are stored on the processing machines; processing machines simply run a copy of the database application that is stored on the local processing machine while all data are stored on the server. Thus, there are no local data to be backed up or recovered in case of machine failure.

2. Database and File Server (RTINTS76)
This server is backed up nightly by ITS staff as part of their normal operating procedures (SOP S0011-01: NT Server Data Backup and Storage of Backup Media, which is available on RTI's internal Web site). Restoration would be handled by ITS according to their SOPs.

Data Security

1. Access Policies
Access to RTI computers is limited to authorized project personnel by use of access control lists for files, programs, and database access. All authentication (both for file and database access) is performed by the use of Windows NT domain accounts issued by RTI's ITS Department.

2. Password Policies
All access to all machines and databases are controlled through an NT domain password that is issued by RTI's ITS Department. Password policies (ITS-ITS-POL-0002) are administered by ITS staff and include the following:

Every user name (i.e., account) on all ITS systems has an associated password. No written or electronic record of passwords is generated. Automated controls are in place to ensure password quality (requiring a minimum length and a mix of uppercase, lowercase, numerals, and punctuation) and periodic (45-day) expiration of passwords.

3. Termination Policies
Access to RTI systems is revoked for terminated personnel in one of two ways:

a) RTI employees—The RTI Human Resources Department automatically notifies ITS staff upon termination of an employee. ITS staff members automatically disable the employee's NT domain account, which is used

by all servers used in the Chemical Speciation Program to grant access to files and databases.

b)   Temporary service agency employees (in SHAL)—The SHAL Supervisor notifies ITS (through Wayne Winstead, the contact for RTI's Environmental and Industrial Sciences Division, which oversees the SHAL computer facilities) of the employee's termination. ITS automatically disables his or her NT domain account, which is used by all servers used in the speciation program to grant access to files and databases.

4.   Virus Protection
All computers (i.e., desktops and file servers) have virus protection software installed. RTI has a site license for Network Associates' McAfee virus protection products (product name varies with operating system). This software package has been set to automatically update its virus engine and definition files from an internal RTI ITS server, which is routinely updated by RTI's ITS Department from the McAfee site. Additional security updates and patches are monitored by RTI's ITS Department and are installed by the System Administrators and/or our Desktop Support staff, as needed.

Appendix A

Contact Information

1.   Server administrators (please contact in order listed)
       ITS Help Desk at (919) 541-6600

2.   Database administrators (please contact in order listed)
       Ed Rickman   Office (919) 541-5908

       Wayne Winstead   Office (919) 541-6526

3.   Desktop support contacts
       SEG-Computer Support Group   Office (919) 541-5500
       After hours, call the ITS Help Desk at (919) 541-6600

4.   RTI Safety and Security
       Non-emergency   (919) 541-6223
       Emergency   (919) 541-5911

5.   RTI facilities
       8:15 a.m. to 5:00 p.m.   Sue Clark, (919) 541-6503
       After hours   (919) 541-6206 or contact through RTI Safety and
                                  Security

6.   RTI IT Department Emergency Contacts
       8:15 a.m. to 5:00 p.m.   Engineering Group Help Desk (919) 541-5500
                                  (or e-mail EG-CSG)
       ITS Help Desk at (919) 541-6600 (or e-mail USERSERV)
       After hours   ITS Help Desk at (919) 541-6600 (or e-mail
                                  USERSERV) and listen for after-hours contact
                                  information
       In an emergency, you may also call (919) 541-6201 to page the person on call or
                                  e-mail urgent@rti.org, which is routed to an on-call
                                  person

7.   RTI Department/Center Managers
       Mark Turner   Office (919) 316-3473
       R.K.M. Jayanty   Office (919) 541-6483
       Bill Gutknecht   Office (919) 541-6883
       Jim Flanagan   Office (919) 990-8649