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QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION SERIES

TITLE	**PHOTOGRAPHIC-BASED TELERADIOMETRIC DATA ARCHIVES**
TYPE	**TECHNICAL INSTRUCTION**
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AUTHORIZATIONS		
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REVISION HISTORY			
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0.1	Minor changes to equipment and file types.	April 1996	

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1.0 PURPOSE AND APPLICABILITY

This technical instruction (TI) is a guide to the archiving and maintenance of teleradiometric data derived from quantitative analysis of 35 mm slides using a slide scanning densitometer or qualitative data. This TI is referenced in Standard Operating Procedure 4610, *Scene Monitoring Archives*, and specifically describes archive procedures associated with photographic digital data files.

2.0 RESPONSIBILITIES

2.1 PROJECT MANAGER

The project manager shall:

- Ensure that archives are accessible, orderly, complete, and current.

- Issue a Data Archive Request form to the data archivist when data have been finalized and reported and are ready to be archived.

- Document and distribute duplicate archive tapes to off-site locations.

2.2 DATA ARCHIVIST

The data archivist shall:

- Obtain and compile ASCII data files to be archived as directed on the Data Archive Request form.

- Perform archives as described in this TI.

- Maintain data archive records.

3.0 REQUIRED EQUIPMENT AND MATERIALS

Scene monitoring archives of slide-derived digital data are performed on IBM-PC compatible systems. The required computer system components and materials include:

- An IBM-compatible 386/486 computer system with VGA and minimum 80 megabyte hard disk connected to the ARS computer network

- Hewlett Packard (HP) Jetstore 6000 Digital Audio Tape (DAT) Drive

- One or more 4 mm DAT cartridges

- Cheyenne Software's ARCserve program, version 4

- ARCserve and WordPerfect software for creating, editing, and maintaining data archive records

- Hewlett-Packard Laserjet printer

Other required materials include:

- Three-ring notebooks

- Plastic tape holders

- Storage boxes

- Metal storage cabinet

4.0   METHODS

Through the Fall 1993 season, scene monitoring digital data files included quantitative scene monitoring slide data in the form of raw teleradiometric data (.SLD) files and processed teleradiometric data (.SVR files). In December 1994 the IMPROVE Program chose to no longer support quantitative estimates of standard visual range derived by slide-based densitometry (teleradiometric methods). Beginning with the Winter 1994 season, the following digital file types exist in relation to photographic-based quantitative or qualitative-only data requested:

- .SLD files - contain qualitative slide code data and raw densitometry (teleradiometric) data.

- .SVE files - contain processed teleradiometric data and associated uncertainty ranges in standard visual range units.

- .EXT files - contain processed teleradiometric data and associated uncertainty ranges in atmospheric extinction units.

- .SQO files - contain only qualitative scene monitoring slide code data.

ASCII files are produced for each season for each site. Archiving of all raw and processed data for a given season is performed on a seasonal basis, after data have been finalized and reported. Files are stored in the original format (non-compressed) on magnetic tape. Two copies of each archive tape are created; one tape is stored at ARS and the other off-site.

The archiving of teleradiometric data is a two-part process. First, the project manager issues a Data Archive Request form to the data archivist. Second, with the information provided on the form, the data archivist can produce quality archives of the data set in a timely manner. These two processes are detailed in the following two (2) major subsections:

4.1 Data Archive Request Form
4.2 Archiving Procedure

4.1   DATA ARCHIVE REQUEST FORM

The project manager will issue a Data Archive Request form to the data archivist after the data have been finalized and reported (see Figure 4-1). The project manager will provide the following information on the form:

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DATA ARCHIVE REQUEST

Date: _____ Project/Study:_____

To: _____ Period: _____

From: _____ # of tape copies: _____

General Data Description: _____

New Tape _____ or Label of Tape to Append: _____

Disposition: _____

Files to be archived (include full path) or attach listing:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

To Be Completed by Data Archivist

Archive date: _____ # of tapes per copy: _____ # of copies: _____

Tape Label(s): _____

Disposition: _____

Notes: _____

_____

_____

_____

archive.req 12/94

Figure 4-1. Data Archive Request Form.

- Current date

- Name of person to receive the data archive request (the data archivist)

- Name of person who initiated the data archive request (the project manager)

- Project name or account codes

- Data period (e.g., Summer 1993)

- Number of archive tape copies required

- A general description of the data (e.g., "digital data files for scene monitoring from the Summer 1995 season for the IMPROVE project")

- Note if a new archive tape is to be created or if an existing tape is to be appended or overwritten

- Disposition of the tapes

- Specific files to be archived (e.g., "all .SLD, .SVE, .EXT, and .SQO files in the subdirectories under g:/users/fsvis/395" or an attached directory listing of the files to be archived)

The data archivist will archive the data within two weeks after receiving the Data Archive Request form and will complete the form with the following information:

- Archive date

- Number of archive tapes made

- Tape labels

- Disposition of the tapes

- Additional notes concerning the archive

4.2   ARCHIVING PROCEDURE

4.2.1 The ServerDat Program

The data are archived using the following steps:

1)   If this is a new tape, initialize the tape by holding the **EJECT** button while inserting the tape into the HP tape drive. When the left LED flashes, release the button. When the orange LED lights, press the **EJECT** button again.   When the initialization is complete, the tape is ejected automatically.

2)   Insert the 4 mm DAT archive tape into the HP tape drive.

3)   From any network workstation, enter the Arcserve program by typing **ARCSERVE** at the DOS prompt.

4)   Select **SCHEDULE ATTENDED JOBS** from the Main Menu.

5)   Select **BACK UP TO TAPE** from the Attended Operations Menu.

6)   Select **SPEED ENTRY** from the Selection Method Menu.

7)   Select the volume that contains the source files (SYS is drive F:, VOL1 is drive G:).

8)   Mark the directories/files to archive by highlighting the directory/file name and pressing **F5**. Press **F2** when all directories/files to archive have been marked.

9)   Fill in the Attended Back Up To Tape Job Entry Form on the computer screen display (see Figure 4-2) with the following information:

- Tape name (maximum of 24 characters). This name is written to the tape header if new or matched for an append. Place an asterisk here if this is an append.

- Mode (append or overwrite).

- The report directory and name (the report lists the archived files and any error messages generated during the job). This file will be used later for hard copy documentation of the archive.

The remaining fields on the Job Entry Form should hold the following values:

- Include Files - This can be used to selectively archive certain files by standard DOS wildcard criteria. If all files in the directories marked in Step 8 are to be archived, leave this field blank.

- Back Up Hidden Files = **NO**

- Back Up System Files **NO**

- Clear Archive Bit = **NO**

- Verify Method = **COMPARE TAPE TO DISK**

- Back Up Method = **COMPLETE: ALL FILES**

- Track Files = **YES**

- Create Script = **NO**

- Delete Source Files = **YES** or **NO**. Select **YES** only if the files are no longer needed on the network drive. Use caution with this option.
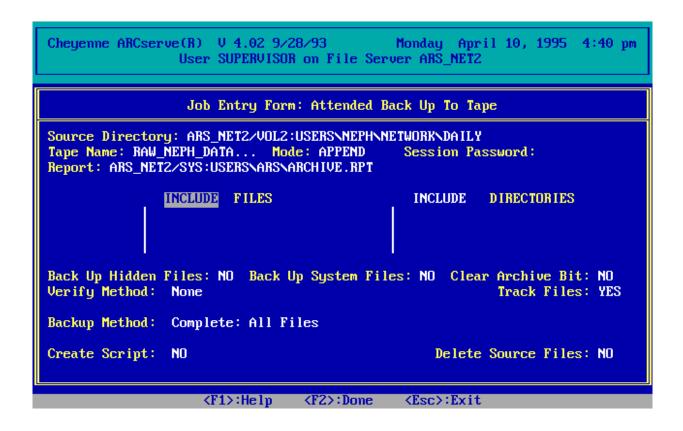
```
┌─────────────────────────────────────────────────────────────────────┐
│ Cheyenne ARCserve(R)  V 4.02 9/28/93        Monday  April 10, 1995  4:40 pm │
│                 User SUPERVISOR on File Server ARS_NET2               │
└─────────────────────────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────────────────────────┐
│              Job Entry Form: Attended Back Up To Tape                 │
├─────────────────────────────────────────────────────────────────────┤
│ Source Directory: ARS_NET2/VOL2:USERS\NEPH\NETWORK\DAILY             │
│ Tape Name: RAW_NEPH_DATA...  Mode: APPEND    Session Password:       │
│ Report: ARS_NET2/SYS:USERS\ARS\ARCHIVE.RPT                          │
│                                                                       │
│              INCLUDE  FILES                  INCLUDE   DIRECTORIES     │
│         │                              │                              │
│         │                              │                              │
│         │                              │                              │
│                                                                       │
│ Back Up Hidden Files: NO  Back Up System Files: NO  Clear Archive Bit: NO │
│ Verify Method:  None                            Track Files: YES      │
│                                                                       │
│ Backup Method:  Complete: All Files                                  │
│                                                                       │
│ Create Script:  NO                         Delete Source Files: NO   │
└─────────────────────────────────────────────────────────────────────┘
           <F1>:Help     <F2>:Done     <Esc>:Exit
```

Figure 4-2. Attended Backup to Tape Job Entry Form (Screen Display).

10)   Press **F2** to begin the job once the Job Entry Form is complete. The program displays the archiving activity on the screen in real-time, giving the total number of files, bytes and blocks, and the specific file and its size as the job is processed.

11)   If the Delete Source Files field in the Job Entry Form was set to **YES**, the program will ask whether or not to delete the source files. The deletion can be confirmed if the files are no longer needed on the network. The source files should not be deleted if additional archives are still required.

12)   Press any key when the job is done to return to the Attended Operations Menu.

13)   Press the **EJECT** button on the tape drive to remove the tape cartridge.

14)   Label both the tape cartridge and the cartridge case.

15)   Repeat all steps to create duplicate tapes.

4.2.2 The Data Archive Report

The data archive report is the file named in Step 9 in Section 4.2.1. The report can be printed by running ARCHRPT.BAT, a DOS batch file that loads WordPerfect and runs a WordPerfect macro to reformat and print the report. To run the batch file:

- At a DOS prompt on the network, type and enter **ARCHRPT**.

- When prompted, enter the report file name as entered in Step 9 in Section 4.2.1.

- The report will be sent to the HP Laserjet printer.

Photocopy the report and store one copy with each archive tape. Store an additional copy in the three-ring Data Archive Log notebook.

4.2.3 Disposition of Tapes and Data Archive Records

The disposition of archive tapes and records is as follows:

- At least one copy of each archive tape created is stored at ARS in the archive storage cabinet. The tape is placed in a plastic protector pouch with a copy of the archive report, then into a storage box with other archive tapes. The storage box will reside in the archive storage cabinet at ARS for no less than five years.

- At least one copy of the archive tape is returned to the project manager with a copy of the archive report and a copy of the completed Data Archive Request form. Additional archive tapes are also returned as directed in the Data Archive Request form. The project manager is responsible for documenting and distributing duplicate archives for on- or off-site storage.

- One copy of the archive report and one copy of the completed Data Archive Request form will be placed in the Data Archive Log notebook. The Data Archive Log notebook resides in the archive storage cabinet.