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**SANDIA NATIONAL LABORATORIES
CIVILIAN RADIOACTIVE WASTE MANAGEMENT
TECHNICAL PROCEDURE (TP)**

**TP-244
Revision 02**

**Collection of Stored Electronic
Data from SNL Data Acquisition Systems**

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REVISION HISTORY

Rev.	Effective Date	Change Summary
00	8/7/95	Initial issue
01	1/31/97	Minor clarifications per YMP-96-D088 revision to clarify QA record designation requirements.
02	04/26/04	Title changed from <i>Downloading, Verifying, and Backing Up Electronic Data Taken by Data Logger</i> to <i>Collection of Stored Electronic Data from SNL Data Acquisition Systems</i> . Modified per QAIP20-1, Revision 09, to address issues raised in CR2035, 3/9/04.



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1.0 SCOPE

Sandia National Laboratories (SNL) is responsible for rock mechanics field experiments to monitor and characterize the Exploratory Studies Facility (ESF) in support of the Yucca Mountain Project (YMP). These experiments include installing and monitoring instrumentation that measures the long-term in situ stability of rock units penetrated by ESF excavations.

This Technical Procedure (TP) applies to all SNL YMP personnel and contractors who shall be trained and qualified to collect stored electronic data from SNL data acquisition systems (DAS).

2.0 OBJECTIVES AND PRIMARY TASKS

The objective of this TP is to describe the process for collecting electronic data from SNL DAS in the ESF.

3.0 RESPONSIBILITIES

The Principal Investigator (PI) or PI designee is responsible for assuring and documenting that individuals assigned to collect electronic data from SNL DAS have read and are properly trained to this procedure before these individuals initiate work. The PI/PI designee is also responsible for verifying instrument and instrumentation performance in accordance with the requirements defined in TP-249, *Maintenance, Verification, and Rejection Criteria of Instrumentation*.

4.0 QUALIFICATION PREREQUISITES

The following prerequisites are required when using this TP:

- A current version of this TP is available for use,
- Measuring and Test Equipment (M&TE) used will have a current calibration

5.0 DEFINITIONS/ACRONYMS

DAS	Data Acquisition System
ESF	Exploratory Studies Facility
M&TE	Measuring and Test Equipment
PI	Principal Investigator
QA	Quality Assurance
QAIP	Quality Assurance Implementing Procedure
SNL	Sandia National Laboratories
TP	Technical Procedure
YMP	Yucca Mountain Project



6.0 PROCESS

Electronic data may be collected by SNL field personnel and contractors involved in the YMP. The PI/PI designee is responsible to ensure that all rock mechanics data collected from an experiment by a SNL DAS are downloaded adequately. The following four steps are required to collect and handle SNL DAS data:

1. Preparing to collect the data
2. Downloading stored data
3. Verifying the collected data file
4. Data handling

6.1 Preparing to Collect the Data

Prior to entering the tunnel, it is necessary to ensure that you have the following items:

- Data Logger Data Collection Form (Appendix A)
- field computer with approved software
- backup field computer power supply
- replacement CR10 datalogger if the CR10 datalogger in use is scheduled for recall
- wristwatch
- pen (black or blue ink)

6.2 Downloading Stored Data

6.2.1 Locate the DAS in the ESF. There is one permanent SNL DAS junction box in the ESF. It is located approximately three meters into Alcove 1 on the right rib.

6.2.2 Open the DAS junction box and attach the serial port from the CR10 datalogger serial port to the field computer serial port.

6.2.3 Collect stored DAS data as follows:

1. Turn on the field computer.
2. Set computer clock as needed.
3. Select (right click) the “**PC208W**” icon.
4. Select the “**CONNECT**” feature button on the toolbar to display the “**CR10 Datalogger Connection**” main menu.
5. Click the “**Connect**” button to connect the field computer to the DAS CR10 datalogger.



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6. Select **“Set Datalogger CLK”** to synchronize the field computer and the CR10 datalogger clocks.
7. Check the **“Prompt for data file name”** box.
8. Select **“Collect All”** box.
9. On the Alternate Data Filename menu, select Data Filename (Area-1) **“Browse”**.
10. Locate and open the current fiscal year folder, for example, **C:\PC208W\FY2004**.
11. Enter an eight character file name for the (*.dat) file name. The (*) file name should include a four character date code and a four character station location/ID code, i.e., enter **“0219sta1”** where ‘0219’ is the date code for , Feb 19, and ‘sta1’ is the station location/ID code for Station 1.
12. Select **“OK”** to download stored data from the CR10 datalogger to the field computer.

6.3 Verifying the Collected Data File

To view and to verify the field data file, perform the following steps:

1. Click the **“View”** feature button on the **“PC208W”** toolbar.
2. Click on **“File/Open”** to locate the data file to be verified.
3. From the **“Open”** menu, right click on the name of the data file to be verified and bring up the **“Select”** menu.
4. Select **“Properties”** to view the attributes of the selected data file.
5. Record the selected data file attributes on the Datalogger Data Collection Form (Appendix A).
6. Check the **“Read Only”** attribute to write protect the data file.
7. Return to the **“Open”** menu. Click **“Open”** or double click on the file name.
8. Check the **“I do not want an FSL file for the dat file”** prompt.
9. Click **“OK”** to view and to verify that the data file was successfully downloaded to the field computer.



10. If the CR10 datalogger in use is scheduled for recall, replace the CR10 as follows:

- (a) Turn off the CR10 datalogger power in the junction box.
- (b) Remove the CR10.
- (c) Record replacement CR10 ID and its recall date on the inner door of the junction box and in the comments of the Datalogger Data Collection Form (Appendix A).
- (d) Install the replacement CR10 datalogger in the junction box.
- (e) Turn on CR10 power.
- (f) Select the **“Connect”** feature button on the field computer toolbar to display the **“CR10 Datalogger Connection”** main menu.
- (g) Click the **“Connect”** button to connect the field computer to the CR10 datalogger.
- (h) Click **“Set Datalogger CLK”** to synchronize the field computer and the datalogger clocks.
- (i) Check the **“Prompt for data file name”** box.
- (j) Click the **“Associated DLD Program”** prompt.
- (k) Select the CR10 datalogger control program file **“agap24hr.dld”** for the 1/24-hour sampling cycle. Record control program file name in the comments of the Datalogger Data Collection Form (Appendix A).
- (l) Click **“OK”** and then click **“Send”** to download **“agap24hr.dld”** from the field computer to the replacement CR10 datalogger in the junction box.

11. Exit PC208W and power down the field computer.

12. Disconnect field computer from CR10 datalogger serial port cable.

6.4 Data Handling

Data transfers, data processing and data submittal to the TDMS will be performed in compliance with the requirements of AP-SV.1Q, *Control of the Electronic Management of Information*, and AP-SIII.3Q, *Submittal and Incorporation of Data to the Technical Data Management System*. Data processing for conversion of the raw data to engineering units will use commercial Off-the-Shelf software programs (e.g., Microsoft Excel) and will utilize standard function math calculations. These math calculations will be documented and verified as part of the TDMS data submittal package.



7.0 RECORDS

Records and record packages, including corrections and changes thereto, generated as a result of implementing this procedure will be prepared and submitted as QA records (QA:QA) to the RPC in accordance with AP-17.1Q, *Records Management*, and AP-SIII.3Q, *Submittal and Incorporation of Data to the Technical Data Management System*.

QA records generated by this procedure include:

- Datalogger Data Collection Form (Appendix A)
- M&TE Calibration records
- Raw data and compiled data to document this work

8.0 REFERENCES

1. AP-12.1Q, *Control of Measuring and Test Equipment and Calibration Standards*
2. AP-17.1Q, *Records Management*
3. AP-SIII.3Q, *Submittal and Incorporation of Data to the Technical Data Management System*
4. QAIP 20-1, *Technical Procedures*
5. TP-249, *Maintenance, Verification, and Rejection Criteria of Instrumentation*
6. AP-SV.1Q, *Control of the Electronic Management of Information*

The most current version of the reference procedures in place at the time of work performance shall apply.



Datalogger Data Collection Form

Date	Time	Data File Name	Data File Size (Bytes)	CR10 SNL#	CR10 Recall Date	Comments	*Reader Initials

***Reader initials above indicate that the individual has read and can demonstrate proficiency in the use of the latest version of TP-244**