GEOSCIENCES AND ENGINEERING DIVISION TECHNICAL OPERATING PROCEDURE	Proc. TOP–012 Rev. 4 Chg 1 Page 1 of 5

Title: **IDENTIFICATION AND CONTROL OF SAMPLES AND CHEMICAL REAGENTS AND STANDARDS**

EFFECTIVITY AND APPROVAL

Revision 4 of this procedure became effective on 10/21/2005. This procedure consists of the pages and changes listed below.

Page No.	Change	Date Effective
1	1	4/25/2007
2	0	10/21/2005
3-5	1	4/25/2007

Change deletes special requirements for archival samples since they are unnecessary and clarifies records control requirements for Sample Custody/Control Logs.

Supersedes Procedure No. TOP–012, Rev. 4, Chg 0 dated 10/21/2005

Approvals

Prepared by	Date	Approved by	Date
Robert O'Brien	4/11/2007	[signature]	4/14/2007

IDENTIFICATION AND CONTROL OF SAMPLES AND CHEMICAL REAGENTS AND STANDARDS

1. PURPOSE

The purpose of this procedure is to provide general methods for identification, control, storage, handling, shipping, and archiving of samples and for the identification of chemical reagents. This procedure establishes controls required by Geosciences and Engineering Division (Division) Quality Assurance Manual Sections 8 and 13.

2. RESPONSIBILITY

2.1 The cognizant principal investigators (PIs) shall be responsible for the implementation of this procedure and ensure that the sample control logs are maintained and up-to-date.

2.2 Personnel performing the tasks described in this procedure are responsible for complying with its requirements.

3. DEFINITION

Samples at the Division take many different forms. Some of the different forms of samples are manufactured samples, natural geological samples, and synthesized samples. These samples may be divided into subsamples that are portions of the original or base sample that have a unique identity. Subsamples are physically separate from the original or base sample and have generally been modified (e.g., polished, crushed, or chemically treated) for a specific use or analysis. Several levels of subsamples are possible depending on the sequence of preparation, treatment, or intended use. Aliquots removed from a sample or subsample that are unmodified prior to testing are not considered subsamples.

4. PROCEDURE

4.1 Sample Identification

Each sample and subsample shall be given a unique sample identification code. These sample identification codes may consist of letters, numbers, and/or symbols. Sample identification shall be traceable to the appropriate documentation (purchase item receiving record, drill log, test record, etc.).

4.1.1 For procured items, the base sample identification code may consist of the manufacturer's lot or heat number for procured items. For nonprocured or field samples, the base identification code may contain a sample code and sequential sample number. For example, two water samples taken from Well EW could be labeled EW1 and EW2.

Base samples that are combined shall be identified by the base sample identification codes of the sample separated by a slash (e.g., EW1/EW2).

4.1.2 Subsamples shall be given unique sample identification codes derived from the base sample identification code. This may be accomplished by adding one or more suffixes to the base sample identification code. These suffixes may identify a treatment, preparation, or use that the subsample has undergone followed by a sequential number. For example, if two rock thin sections are made from base rock sample DR3, then they could be labeled DR3–TS1 and DR3–TS2.

4.1.3 The base and subsample identification may be separated by an asterisk or a hyphen. Example: DR3–XRD1, designates a subsample of base sample DR3 analyzed by x-ray diffraction.

4.2 Identification Methods

4.2.1 Large samples, such as plates, rock specimens, and containers of solutions, may be directly marked by indelible markers, indentation (punches, vibrating tools, etc), or tags. Direct marking shall be such that the eventual use of the item is not adversely affected.

4.2.2 Samples on which direct marking is not possible or is impractical shall be identified by marking on the containers/bags containing the sample.

4.3 Sample Control

4.3.1 An appropriate Sample Custody/Control Log shall be maintained to document sample receipt, storage, subdivision, and disposition. Separate logs for separate projects are allowed. The logs may be kept either in conventional paper or electronic form. The Sample Custody/Control Log Entry Form (Division form TOP–004) may be used as a mechanism to transfer data into the Sample Custody Log or may be used as pages of a log. This form lists information that may be included in the sample custody log. The following information is mandatory:

- Sample identification code
- General description of the sample (including sample collection location if applicable)
- Date of receipt, collection, or synthesis
- Date of entry into log
- Person making entry
- Long term storage location (indicate discarded for tested samples destroyed, disposed of, or not retained)

4.3.2 The Sample Custody/Control Log shall be updated whenever new samples are added, subsamples are taken, or samples or subsamples are discarded. These updates shall include the same information as identified in Section 4.3.1 of this TOP.

4.4 Sample Shipping, Storage, and Handling

4.4.1 Routine sample storage shall be accomplished in SwRI and Division laboratories providing limited access, protection from environmental extremes, and protection from deterioration.

4.4.2 Samples requiring storage conditions beyond those provided in paragraph 4.4.1 shall have their special storage requirements clearly identified.

4.4.3 Samples shall be shipped and handled in accordance with industry accepted or customary practices unless special requirements are clearly identified by the PI. Special requirements, including non-routine storage, shall be identified in the scientific notebooks.

4.5 Identification of Chemical Reagents and Standards

4.5.1 Scientific Notebook entries should document the use of chemical reagents and standards not explicitly identified as samples. Entries shall identify the lot numbers of the source reagents or standards.

4.5.2 Solutions prepared from chemical reagents and diluted solution standards that are retained for use beyond the day of preparation shall be labeled with the following information:

- Appropriate identification of the chemical solution or diluted solution standard corresponding to the entry in the Scientific Notebook
- Date of preparation, and as applicable, date of expiration
- Reference of Scientific Notebook entry of the preparation by notebook control number and page number

4.5.3 Chemical reagents and standards with expiration dates shall be discarded upon expiration, unless:

- The expiration date is extended as evidenced by revision of the date on the container and validated by a PI initials, or

- Limited use is permitted as evidenced by striking out the original expiration date and identifying the containers "EXPIRED." The use of any expired standard, should be limited to appropriate applications and preapproved by the PI.

5. RECORDS

5.1 Completed Sample Custody/Control Logs shall be controlled as Quality Assurance records in accordance with QAP–012, Quality Assurance Records Control.

5.2 Sample Custody/Control Logs shall be controlled while related samples are being used or stored. Logs shall be stored in locations sufficiently protected and secure to prevent loss of information. The location of Sample Custody/Control Logs shall be near long-term sample storage locations to facilitate cross reference.

5.3 In-process Sample Custody/Control Logs shall be copied and placed in the Electronic Library Facility as interim QA records annually in accordance with AP–019, Records Management.