GEOSCIENCES AND ENGINEERING DIVISION TECHNICAL OPERATING PROCEDURE	Proc. TOP–003–01 Rev. 1 Chg 0 Page 1 of 3

Title: **PROCEDURE FOR MACHINING ELECTROCHEMICAL/CORROSION TEST SPECIMENS**

EFFECTIVITY AND APPROVAL

Revision 1 of this procedure became effective on September 16, 2005. This procedure consists of the pages and changes listed below.

Page No.	Change	Date Effective
All	0	09/16/2005

Supersedes Procedure No. TOP–003–01, Rev. 0 dated 01/26/1989

Approvals

Prepared by	Date	Approved by	Date
	9/22/05		9/26/05

PROCEDURE FOR MACHINING ELECTROCHEMICAL/CORROSION TEST SPECIMENS

1. PURPOSE

The purpose of this procedure is to describe the requirements for machining test specimens for evaluating the electrochemical behavior of metallic materials for high-level waste canisters.

2. SCOPE AND APPLICATION

This procedure describes the equipment and process to be utilized for specimen machining, storage, record keeping, and identification.

3. RESPONSIBILITIES

3.1 The project engineer is responsible for the implementation and maintenance of this procedure.

3.2 The specimen fabricator is responsible for implementing the requirements of this procedure.

4. EQUIPMENT

The following equipment is employed when using this procedure.

- Band saw
- Milling machine
- Lathe
- Threading taps
- Shaper
- Grinder
- Measuring tools (calipers, micrometers, etc.)
- Surface roughness measuring equipment
- Bench/tool-makers microscope
- Other, as approved prior to specimen fabrication
- NDT equipment, as necessary

5. PROCEDURE

5.1 The dimensions of all test specimens shall be specified in a controlled drawing prepared in accordance with QAP–017, Drawing Control.

5.2 The test specimens shall be prepared using standard machine shop techniques and practices.

5.3 The specimens shall meet the dimensional tolerances for size, surface finish, and other requirements as stated in the work order and/or drawings accompanying the work order.

5.4 No procedures or tool(s) that can alter the surface or bulk microstructure or corrosion properties of the fabricated specimens shall be used (e.g., flame/gas cutting torch, laser beam, cutting/grinding without adequate cooling, chemical etchants or acids).

5.5 Fabricated specimens shall be inspected to confirm that drawing requirements and tolerances are satisfied. As necessary, nondestructive evaluations shall be performed (i.e., on welded materials or samples) by qualified personnel or qualified suppliers. Inspection and nondestructive evaluation results shall identify the material by type and unique identification or sample number, the individual performing the inspection or evaluation, and results. Deviations from acceptance tolerances shall be documented and dispositioned in accordance with QAP–009, Nonconformance Control.

6. IDENTIFICATION AND STORAGE

6.1 The specimen fabricator shall return the test samples in plastic containers/bags with identification and specimen material traceability records as required by TOP–012, Identification and Control of Samples and Chemical Reagents and Standards. Specimens fabricated from different materials, or a different heat/lot of the same material shall be properly identified and stored in separate containers/bags.

6.2 When required, the containers/bags containing specimens shall be stored in a desiccator prior to use to reduce the interaction of atmospheric moisture with the specimens.

7. RECORDS

Records of required specimen inspections and tests shall be maintained as quality assurance records in accordance with QAP–012, Quality Assurance Records Control.