



**DEFENSE LOGISTICS AGENCY
LAND AND MARITIME
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January 6, 2016

MEMORANDUM FOR VAI (LSA)

SUBJECT: Dated Engineering Practices Study (EPS) To Solicit User Input To Determine Whether The Proposed Methodology For Enhancing The Dwell Time For Radioisotope Dry Gross Leak Testing Should Be Added To MIL-STD-750-1, Test Method 1071, Condition B. Project Number 5961-2015-070.

The findings and recommendations on Engineering Practices Study, dated 6 January 2016, are enclosed.

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/ Signed /

THOMAS M. HESS
Chief
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ENGINEERING PRACTICE STUDY

PROJECT NUMBER: 5961-2015-070

TITLE: MIL-STD-750-1, TEST METHOD 1071v14, CONDITION B
PROPOSED METHODOLOGY FOR ENHANCING THE DWELL TIME
FOR RADIOISOTOPE DRY GROSS LEAK TESTING

6 JANUARY 2016

FINAL REPORT

Prepared by:
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I. **OBJECTIVES**: The objective of this EP study was to solicit user input to determine whether the proposed methodology for enhancing dwell time for radioisotope dry gross leak testing should be incorporated into condition B of test method 1071 of MIL-STD-750-1.

II. **BACKGROUND**: Test condition B of test method 1071 of MIL-STD-750-1 cover the requirements for determining gross leak rate using a dry ^{85}Kr radioisotope procedure. This test condition is currently limited to device packages that conform to at least one of the following:

1. Contains ^{85}Kr absorbing or adsorbing medium, such as electrical insulation, organic, or molecular sieve, or an approved gettering material.
2. Have an internal free cavity volume of 0.1 cc or larger.
3. Can meet the requirements of MIL-STD-750-1, test Method 1071, paragraphs 5.a and 5.b.

To ensure accurate hermeticity test results, all testing must be completed within the required dwell time. The dwell time is defined as the maximum time allowed from the removal of the device from pressurization to the completion of device testing.

The proposed dwell time enhancement methodology uses a deionized (DI) water immersion step immediately following the pressurization sequence. This DI water immersion step traps the ^{85}Kr gas inside the device cavity, ensuring that a more accurate ^{85}Kr reading can be taken.

III. **RESULTS**: The EP Study project was opened and an initial draft was posted on the DLA Land and Maritime website. Inputs were solicited from all currently listed parties on DLA Land and Maritime's FSC 5961 stock class email distribution list, which included military services, manufacturers, original equipment manufacturers, and the user community. No records of any response or interest are available to support the addition of the proposed methodology.

IV. **CONCLUSIONS**: The results of this EP Study do not support the addition of the proposed methodology for dwell time enhancement into condition B of test method 1071 of MIL-STD-750-1.

V. **RECOMMENDATIONS**: Work with all interested parties to create another proposal that warrants justification for adding the proposed methodology.