

## **Chapter 1 Introduction**

### **1-1. Purpose**

This manual provides guidance on thermal spray coating systems to engineering, operations, maintenance, and construction personnel and other individuals responsible for the protection of U.S. Army Corps of Engineers (USACE) civil works structures. It gives broad-base instructions on corrosion protection using thermal sprayed coatings and state-of-the-art procedures that can be employed on Corps projects, which can aid in attaining better and, from a long-range viewpoint, more economical thermal spray jobs.

### **1-2. Applicability**

This Engineer Manual (EM) applies to all USACE Commands having responsibilities for the design and construction of civil works projects.

### **1-3. References**

Required and related references are listed in Appendix A.

### **1-4. Distribution Statement**

Approved for public release; distribution is unlimited.

### **1-5. Abbreviations and Acronyms**

A glossary containing abbreviations and acronyms used herein is included as Appendix B.

### **1-6. Neutral Language Use and Terms**

*a.* Throughout this manual neutral language is used to include both the masculine and feminine genders: any exceptions to this statement will be noted.

*b.* The terms “metallize,” “metallizing,” and “thermal spraying” are used broadly herein to indicate all types of sprayed metal protective coatings applied by any of several processes. The term “thermal spraying” is more inclusive and is descriptive of other non-metallic as well as metallic coating materials.

### **1-7. Scope**

*a.* This manual presents an overview of thermal spray technology and discusses thermal spray coating materials, processes, specifications, selection, surface preparation, application, inspection and testing, sealing, maintenance, and safety.

*b.* Certain types of thermal spray coatings and processes are discussed even though they do not appear in Guide Specification CEGS-09971. Some of these thermal spray coatings and processes are presented for general information; others are discussed because they may be considered for use in special situations.

*c.* Paint materials are discussed in this manual to the extent that this information is useful in understanding the applicability of thermal spray coatings. The inclusion of information on paint coatings illustrates that the subject of corrosion protection using coatings cannot be approached in an exclusive manner.

*d.* This manual includes a complete topic index to facilitate locating specific information. Appendix A will help locate specific references mentioned. Appendix B lists abbreviations and acronyms used. Appendix C contains important requirements needed for specifying a complete metallizing specification for a civil works project. Appendix D is provided to illustrate recent USACE experience and lessons learned with thermal spray coatings at civil works facilities.