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	Engineering and Design QUALITY ASSURANCE OF LABORATORY TESTING PROCEDURES	
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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

ER 1110-1-261

Regulation
No. 1110-1-261

31 March 1998

Engineering and Design
QUALITY ASSURANCE OF LABORATORY TESTING PROCEDURES

1. Purpose

This regulation prescribes responsibilities and procedures for materials and water quality testing performed by and for U.S. Army Corps of Engineers district offices. Guidance on similar responsibilities and procedures for Hazardous, Toxic, Radioactive Waste (HTRW) materials is provided in Engineer Regulation (ER) 1110-1-263.

2. Applicability

This regulation is applicable to all USACE Commands having responsibilities for the planning, design, construction, and operation of Civil Works, Military, and Support-for-Others programs.

3. References

References are listed in Appendix A.

4. Distribution Statement

Approved for public release, distribution is unlimited.

5. Policy

a. Inspection responsibilities. The District Commander is responsible for assuring that project and contracted commercial laboratories performing materials testing and chemical testing of water and sediment, as well as preparation of other samples requiring chemical analysis, have the required capability.

(1) Material testing laboratories. ER 1110-1-8100 assigns the inspection and validation of laboratories performing materials testing (soil, rock, concrete, asphalt, and other construction materials) for the districts to the Materials Testing Center (MTC), U.S. Army Engineer Waterways Experiment Station (WES). Each district is required to have its project laboratories and any other laboratories utilized by the district, Architect/Engineer (A/E), or construction contractor, inspected by the MTC. The district should establish a quality assurance program to verify the accuracy of contracted laboratory test results. Assistance in outlining this program is available from the MTC.

(2) Water quality investigation. Laboratories performing water quality, wastewater, sludge, or sediment testing will require approval from USACE. Chemistry and Materials Quality Assurance Laboratory (CMQAL) will develop the approval process for each district depending upon the project and regulatory requirements.

b. Inspection schedule.

(1) For all contracted laboratories and project materials Quality Assurance (QA) laboratories testing concrete, bituminous materials, soils, rock, and other materials samples, an initial inspection and validation shall be performed prior to performance of testing and at least every 2 years thereafter.

This regulation supersedes ER 1110-1-261, dated 26 November 1986.

(2) Laboratories performing water quality, wastewater, sludge, and sediment testing shall be approved at an interval not to exceed 18 months.

(3) All laboratories shall be inspected at any time when current conditions are judged to differ from the required conditions.

c. Inspection report. After inspection and /or approval of any laboratory, the MTC and CMQAL will report their findings to the district requesting the inspection, and maintain copies of the inspection report for 4 years after the inspection or as otherwise deemed necessary.

6. Standards of Acceptability

a. Concrete, steel, and bituminous materials. Laboratories for testing concrete, steel, and bituminous materials shall be inspected for compliance with American Society for Testing and Materials (ASTM) E 329, or project specifications, as applicable.

b. Soils and rock. Laboratories for testing soils and rock shall be inspected for compliance with ASTM D 3740 and applicable tests in Engineer Manual (EM) 1110-2-1906 or tests required by project requirements.

c. Water, sediment, and other samples. Laboratories engaged in analysis of water, sediment, and other samples for chemical analysis shall be inspected to assure that they have the capability to perform analyses and quality control procedures described in references in Appendix A as appropriate. The use of analytical methods for procedures not addressed in these references will be evaluated by the CMQAL for conformance with project or program requirements.

d. Other materials. Laboratories testing other materials shall be inspected for capabilities to perform tests required by project requirements.

FOR THE COMMANDER:

ALBERT J. GENETTI, JR.
Major General, USA
Chief of Staff

Appendix A
References

40 CFR Part 136
Guidelines Establishing Test Procedures for the Analysis of Pollutants.

ER 1110-1-263
Chemical Data Quality Management for Hazardous, Toxic, Radioactive Waste Remedial Activities

ER 1110-1-8100
Laboratory Investigations and Testing

EM 1110-2-1906
Laboratory Soils Testing

American Public Health Association
American Public Health Association. "Standard Methods for the Examination of Water and Wastewater," current edition, American Public Health Association, American Water Works Association, and Water Pollution Control Federation, American Public Health Association, Washington, DC.

American Society for Testing and Materials
American Society for Testing and Materials. "Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction," ASTM E 329, West Conshohocken, PA.

American Society for Testing and Materials
American Society for Testing and Materials. "Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction," ASTM D 3740, West Conshohocken, PA.

Barnett and Mallory 1971
Barnett, P. R., and Mallory, E. C., Jr. 1971. "Determination of Minor Elements in Water by Emission Spectroscopy," USGS-TWRI Book 5, Chapter A2, U.S. Geological Survey, Denver, CO.[1]

Britton and Greeson 1989
Britton, L. J., and Greeson, P. E., ed. 1989. "Methods for the Collection and Analysis of Aquatic Biological and Microbiological Samples," USGS-TWRI Book 5, Chapter A4, U.S. Geological Survey, Denver, CO.[1]

Fishman and Friedman 1989
Fishman, M. J., and Friedman, L. C., ed. 1989. "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments," USGS-TWRI Book 5, Chapter A1, U.S. Geological Survey, Denver, CO.[1]

Friedman and Erdmann 1982
Friedman, L. C., and Erdmann, D. E. 1982. "Quality Assurance Practices for the Chemical and Biological Analyses of Water and Fluvial Sediments," USGS-TWRI Book 5, Chapter A6, U.S. Geological Survey, Denver, CO.[1]

Guy 1969
Guy, H. P. 1969. "Laboratory Theory and Methods for Sediment Analysis," USGS-TWRI Book 5, Chapter C1, U.S. Geological Survey, Denver, CO.[1]

Plumb 1981
Plumb, R. H. 1981. "Procedures for Handling and Chemical Analysis of Sediment and Water Samples," Technical Report EPA/CE-81-1, U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Thatcher, Janzer, and Edwards 1977
Thatcher, L. L., Janzer, V. J., and Edwards, K. W. 1977. "Methods for Determination of Radioactive Substances in Water and Fluvial Sediments," USGS-TWRI Book 5, Chapter A5, U.S. Geological Survey, Denver, CO.[1]

U.S. Environmental Protection Agency 1979
U.S. Environmental Protection Agency. 1979. "Handbook for Analytical Quality Control in Water and Wastewater Laboratories," Publication EPA 600/4-79-019, Environmental Monitoring and Support Laboratory, Environmental Research Center, Cincinnati, OH.

U.S. Environmental Protection Agency 1983
U.S. Environmental Protection Agency. 1983. "Method for Chemical Analysis of Water and Waste," Publication EPA-600-4-79-020, Environmental Monitoring and Support Laboratory, Environmental Research Center, Cincinnati, OH.

[1] Publication available from U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, CO 80225.

U.S. Environmental Protection Agency
U.S. Environmental Protection Agency. "Test Methods for Evaluating Solid Wastes," Publication No. SW-846, 3rd edition, most recent update, Office of Solid Waste and Emergency Response, Washington, DC 20460.

Wershaw et al. 1987
Wershaw, R. L., Fishman, M. J., Grabbe, R. R., and Lowe, L. E., ed. 1987. "Methods for the Determination of Organic Substances in Water and Fluvial Sediments," USGS-TWRI Book 5, Chapter A3, U.S. Geological Survey, Denver, CO.[1]