DMS - 7400
QUALIFICATION PROCEDURE FOR LABORATORIES CONDUCTING
COMPACtion AND TRIAXIAL COMPRESSION TESTING OF SOILS
AND BASE MATERIALS

EFFECTIVE DATE: SEPTEMBER 2010

7400.1. Description. The Materials and Pavements Section of the Construction Division
(CST/M&P) maintains a program to qualify commercial laboratories to conduct compaction and
triaxial compression testing of soils and base materials. A commercial laboratory is defined as a
laboratory that performs testing for contractors, material suppliers, the Department, or any
company performing work associated with a Department project. Laboratories approved under
this program can:
• conduct compaction and triaxial compression testing of soils and base materials for the
  Department and
• conduct compaction and triaxial compression testing of soils and base materials for
  contractors and suppliers to use as a basis of request for referee testing by CST/M&P.

This Specification describes the requirements and procedures CST/M&P uses to maintain this
program.

7400.2. Units of Measurements. The values given in parentheses (if provided) are not standard
and may not be exact mathematical conversions. Use each system of units separately. Combining
values from the two systems may result in nonconformance with the standard.

7400.3. Material Producer List. CST/M&P maintains a list of laboratories qualified to conduct
compaction and triaxial compression testing of soils and base materials. Laboratories qualified
under this program will be listed on the Material Producer List (MPL) entitled “Laboratories
Approved to Perform Compaction and Triaxial Compression Testing.”

7400.4. Qualification Procedure.

A. Pre-Qualification Request. Submit a written request for qualification to the
Texas Department of Transportation, Construction Division, Materials and Pavements
Section (CP51), 125 East 11th Street, Austin, Texas 78701-2483. If a company has more
than one laboratory, a request must be made for each location.

Include the following information with the request:
• Laboratory name,
• Physical and mailing addresses for each laboratory location seeking approval,
• Names, phone numbers, and email addresses of contact personnel, and
• Names of certified personnel and copies of their current certificates.

B. **Personnel Certifications.** All personnel performing compaction or triaxial compression testing of soils or base materials must have current certifications in Soils and Flexible Base Certification Levels (SB) 201 and SB 202 through the Department’s approved certification program or by CST/M&P.

C. **Laboratory Inspection.** CST/M&P will schedule a meeting with the laboratory to review the laboratory’s quality process. The review may include physical observation of:

- Laboratory testing,
- Training records and certifications of personnel,
- Equipment and equipment calibration records (all applicable testing equipment must meet the requirements of Tex-198-E), and
- Test data, calculations, and test reports.

D. **Evaluation.**

1. **Qualification.** The Department will list laboratories that meet the requirements of this specification on the MPL.

2. **Failure to Qualify.** Industry laboratories that fail to meet the requirements of this specification must provide written explanation to CST/M&P detailing actions taken to correct deficiencies in order to be reconsidered for qualification.

7400.5. **Maintenance of MPL Status.**

A. **Random Inspection.** The Department reserves the right to conduct random audits of laboratories, test reports, and personnel performing tests to verify compliance with this specification.

B. **Certification.** The laboratory must immediately notify CST/M&P of changes in personnel and must provide copies of their current certifications.

C. **Proficiency Sample Program.** All personnel performing compaction and/or triaxial compression testing of soils and base materials must participate in CST/M&P’s proficiency sample program, which includes compaction and triaxial compression testing.

D. **Periodic Evaluation.** The Department will randomly split samples with laboratories qualified under this specification. Department personnel will split base material samples for test three ways, with one sample for the commercial laboratory, one for the district laboratory, and one for CST/M&P.

1. **Testing.** Ten samples will be molded using the maximum density and optimum moisture content in accordance with Tex-113-E.

   • Four samples will be tested for compressive strength using a lateral pressure of 0 psi,
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- Three samples will be tested for compressive strength using a lateral pressure of 3 psi, and
- Three samples will be tested for compressive strength using a lateral pressure of 15 psi.

2. **Results.** Split sample results must be within the following tolerances of CST/M&P’s results:
   - Maximum density must be within 2.0 pcf,
   - Optimum moisture content must be within 0.5 percentage points, and
   - Average compressive strengths for each lateral pressure must be within 10.0 psi.

3. **Statistical Analysis.** CST/M&P will review split sample history of a minimum of five and maximum of twenty-five split samples with the commercial laboratory using a paired-t test with a 95% confidence level.

   If the paired-t test indicates the populations are not the same, at the 95% confidence level, or if the individual split sample results are outside the acceptable tolerances, the commercial laboratory will provide written response to CST/M&P identifying cause for each discrepancy and actions taken to correct the discrepancy. CST/M&P will review the written response and determine whether further action will be taken.

7400.6. **Removal and Reinstatement.**

   A. **Disqualification.** Laboratories found to be in violation of this specification are subject to removal from the MPL and are prohibited from furnishing compaction and triaxial compression testing services for Department projects. Material tested for a contractor or supplier will not be eligible for referee testing by CST/M&P if the company that performed the testing is removed from the MPL.

   Causes for disqualification include, but are not limited to:
   - Failure to adhere to the laboratory inspection requirements,
   - Failure to maintain the good standing of personnel in the proficiency program,
   - Failure to maintain current certifications of personnel performing testing,
   - Failure to notify CST/M&P when personnel changes are made,
   - Inability to identify and correct split sample testing discrepancies or paired t-test results, and
   - Falsification of any information on a test report.

   B. **Re-Qualification.** Upon review and approval by CST/M&P, a commercial laboratory may be re-qualified by providing evidence of corrected deficiencies found in the laboratory inspection, recordkeeping, split sample testing, proficiency sample testing, and technician qualification.
A commercial laboratory disqualified for split sample disagreement can only be re-qualified by testing a minimum of five split samples with CST/M&P, with paired-t tests showing that test results are equivalent at the 95% confidence level.

The commercial laboratory must bear all expenses associated with requalification.

The Department will not re-qualify any commercial laboratory disqualified for falsifying any information on a test report for a minimum of 3 years. Personnel found to have falsified information on a test report will be cause for decertification.

7400.7. Archived Versions. Archived versions are available.