

## 701 General QMP Requirements

### 701.1 Description

#### 701.1.1 General

- (1) This section describes contractor responsibilities common to QMPs under 700 including quality control plans; personnel and laboratory certification; quality control testing; data submission; and record keeping. This section also describes department responsibilities, common to all QMPs under 700, for verification and quality assurance testing. Exceptions and additional requirements under the QMP program are specified in individual QMP specifications.

#### 701.1.2 Quality Control Program

##### 701.1.2.1 General

- (1) Provide and maintain a quality control program, defined as all contractor activities and documentation of the following:
  1. Gradation and mix design.
  2. Control and inspection of production and placement processes.
  3. Material sampling, testing, and correction of in-place work.
- (2) [CMM 800](#) provides additional detailed guidance for QMP work and describes required sampling and testing procedures.
- (3) Use MRS to report contract-required test results to the department electronically, estimate pay adjustments, and print reports. Qualified personnel may obtain MRS software at:

<http://www.atwoodsystems.com/>

##### 701.1.2.2 Quality Control Plan

- (1) Prepare a project-specific written quality control plan for each individual QMP specification and construct the project as that plan provides. Submit each individual quality control plan to the engineer no later than 10 business days before placing the respective material. Obtain engineer approval before making process or material changes that differ from those provided in approved QC plans. Update QC plans with changes as they become effective. Provide current plans to the engineer and post in each contractor laboratory before producing material and as changes are adopted.
- (2) Ensure that quality control plans include the following elements:
  1. Organizational chart including names, telephone numbers, current certifications with expiration dates, and roles and responsibilities of quality control personnel.
  2. Process for disseminating quality control and corrective action information to appropriate persons. Include a list of recipients, the communication means used, and action time frames.
  3. Locations of qualified QC laboratories, including their effective expiration dates and tests qualified to perform.
  4. Material sources; include unique identifier for each aggregate source.
  5. Batch plants and processing locations.
  6. Initial and routine equipment checks and documentation.
  7. Frequency of contractor quality control testing.
  8. Process control testing the contractor intends to perform, and associated control charts or other documentation the contractor will make available to the department.
  9. Procedures for identifying and documenting the locations of yielding foundation before placing material.

##### 701.1.2.3 Small Quantities

- (1) For contracts with small quantities of material, as defined in individual QMP specifications, the contractor may submit an abbreviated quality control plan consisting of only items 1, 4, 5, and 7 of [701.1.2.2](#)(2) or integrate that small-quantity work into another contract QC plan.

##### 701.1.2.4 Personnel Certification

- (1) Have personnel that are HTCP-certified at or above the minimum levels specified in table 701-1 perform sampling, testing, and documentation.
- (2) A certified technician coordinates and is responsible for work an assistant certified technician (ACT) performs. The certified technician ensures that sampling and testing is performed correctly, analyzes test results, and posts resulting data. No more than one ACT can work under a single certified technician.

#### **701.1.2.5 Laboratory Qualification**

- (1) Ensure that contractor portable and fixed laboratories, as well as commercial laboratories performing testing under the contract, are qualified to perform the work in question. Obtain information on the Wisconsin laboratory qualification program from the department's web site at:

<https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/tools/appr-prod/qual-labs.aspx>

#### **701.1.2.6 Equipment**

- (1) Furnish the necessary equipment and supplies for performing quality control testing. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate testing equipment according to [CMM 830](#) and maintain a calibration record at the laboratory.

#### **701.1.2.7 Documentation**

##### **701.1.2.7.1 Control Charts**

- (1) When control charts are required under the contract, maintain standardized control charts at the laboratory. Record contractor test results on the charts the same day as testing. Plot the running average of the last four QC data points.
- (2) Show upper and/or lower control and warning limits, when applicable. Plot test results from additional, non-random sampling as well as department test results as soon as the information becomes available; do not include them in the 4-point running average unless specified otherwise in the individual QMP provisions. Label the plotted information or include a legend.
- (3) Monitor control charts and conduct corrective actions as specified in the QMP provisions. Document corrective actions as well as resulting effects in the materials report.

##### **701.1.2.7.2 Quality Control Source Documents**

- (1) Document observations, material adjustments, process adjustments, and nonconforming material investigations daily in a permanent field record. Note additional process control information enumerated in the contractor's quality control plan.
- (2) Use forms described in [CMM 800](#). When electronic reporting is required, submit the data using MRS within 5 business days after results are available.
- (3) Submit final testing records, control charts, source documents, and other documentation in a manner acceptable to the engineer within 10 business days after placement. For long-term test results, submit final records within 10 business days after contract-required information becomes available. The engineer may allow submission of scanned copies of hand-written documentation.

#### **701.2 (Vacant)**

#### **701.3 Testing**

### 701.3.1 General

- (1) Perform contract required QC tests for samples randomly located according to [CMM 830](#). Use the test methods specified in table 701-1.

**TABLE 701-1 TESTING AND CERTIFICATION STANDARDS**

TEST	TEST STANDARD	MINIMUM REQUIRED CERTIFICATION (any one of the certifications listed for each test)
Random Sampling	<a href="#">WTM D3665</a>	Transportation Materials Sampling Technician (TMS) TMS Assistant Certified Technician (ACT-TMS) Aggregate Technician I (AGGTEC-I) AGGTEC-I Assistant Certified Technician (ACT-AGG) PCC Technician I (PCCTEC-I) PCCTEC-I Assistant Certified Technician (ACT-PCC) Grading Technician I (GRADINGTEC-I) Grading Assistant Certified Technician (ACT-GRADING)
Sampling Aggregates	<a href="#">WTM R90</a>	TMS, ACT-TMS, AGGTEC-I, ACT-AGG
Percent passing the No. 200 sieve	<a href="#">WTM T11</a>	AGGTEC-I, ACT-AGG
Fine & coarse aggregate gradation	<a href="#">WTM T27</a>	
Aggregate moisture content	<a href="#">WTM T255</a>	
Fractured faces	<a href="#">WTM D5821</a>	
Liquid limit	<a href="#">WTM T89</a>	
Plastic Limit and Plasticity index	<a href="#">AASHTO T90<sup>[1]</sup></a>	Aggregate Testing for Transportation Systems (ATTS) GRADINGTEC-I, or ACT-GRADING
Sampling freshly mixed concrete	<a href="#">WTM R60</a>	PCCTEC-1 ACT-PCC
Air content of fresh concrete	<a href="#">WTM T152</a> WTM T395	
Air void system of fresh concrete	<a href="#">WTM T395</a>	
Concrete slump	<a href="#">WTM T119</a>	
Concrete temperature	<a href="#">AASHTO T309</a>	
Making and curing concrete specimens	<a href="#">WTM R100</a>	
Moist curing for concrete specimens	<a href="#">AASHTO M201</a>	
Concrete compressive strength	<a href="#">WTM T22</a>	
Concrete flexural strength	<a href="#">WTM T97</a>	Concrete Strength Tester (CST) CST Assistant Certified Technician (ACT-CST)
Concrete surface resistivity	<a href="#">WTM T358</a>	
Voids in aggregate	<a href="#">AASHTO T19</a>	
Workability of Concrete	<a href="#">AASHTO T396</a>	PCCTEC-II
Profiling	—	PROFILER

<sup>[1]</sup> A plasticity check, if required under individual QMP specifications, may be performed by an AGGTEC-I in addition to the certifications listed for liquid limit and plasticity index tests.

### 701.3.2 Contractor QC Testing

- (1) Generate random numbers, determine sample and test locations according to [WTM D3665](#), and provide to the engineer before placing material within the corresponding test increment. Perform contract required QC tests at the predetermined random location. Also, perform other tests as necessary to control production and construction processes, and additional testing enumerated in the contractor's quality control plan or that the engineer directs. Report test results to the engineer within timeframes specified in individual QMP specifications.
- (2) Notify the engineer when an individual test exceeds a spec limit. Material from the first out-of-spec test up to, but not including, material from the first subsequent in-spec test is nonconforming. The department may reject or otherwise determine the final disposition of nonconforming material as specified in [106.5](#).
- (3) The department may periodically observe contractor sampling and testing, and direct additional contractor sampling and testing for department evaluation.

### 701.3.3 Department Testing

#### 701.3.3.1 General

- (1) The department conducts verification testing to validate product quality and independent assurance testing to evaluate sampling and testing. The department will use the same sampling and testing

methods required for contractor testing under [701.3.1](#). The department will provide the contractor with a list of names and telephone numbers of project verification and independent assurance personnel upon approval of the QC plan.

- (2) The department will provide test results to the contractor within timeframes specified in individual QMP specifications.
- (3) Correct department-identified deficiencies. If the contractor fails to correct deficiencies or resolve discrepancies, the engineer may suspend production.

#### **701.3.3.2 Quality Verification Testing**

- (1) The department will have an HTCP-certified technician, or ACT working under a certified technician, perform QV sampling and testing. Department QV testing personnel must meet the same certification requirements specified in [701.1.2.4](#).
- (2) The department will sample and test randomly at locations independent of the contractor's QC tests and use separate equipment and laboratories. The department will notify the contractor before sampling so the contractor can observe QV sampling. The department will conduct a minimum of one verification test for each 5 contractor QC tests unless individual QMP specifications specify otherwise.
- (3) If verification tests conform to specifications, no further action is required. If verification tests do not conform to specifications, the department will notify the contractor immediately and the two parties will jointly investigate. The investigation may include additional testing as well as review and observation of both department and contractor sampling and testing procedures, equipment, and other documented test results. Both parties will document investigative work.

#### **701.3.3.3 Independent Assurance Testing**

- (1) The department performs independent assurance testing to evaluate department verification and contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform independent assurance reviews according to the department's independent assurance program, which may include one or more of the following:
  - 1. Split sample testing.
  - 2. Proficiency sample testing.
  - 3. Witnessing sampling and testing.
  - 4. Test equipment calibration checks.
  - 5. Reviewing contract-required data and available contractor process control information.
  - 6. Requesting that testing personnel perform additional sampling and testing.

#### **701.3.4 Dispute Resolution**

- (1) The engineer and contractor will jointly investigate any testing discrepancies and potentially nonconforming materials. Attempt to seek a mutually agreeable solution. Abide to the dispute resolution procedures in [106.3.4.3.5](#).

#### **701.3.5 Corrective Action**

- (1) Conform to corrective action specified in individual QMP specifications or as directed by the engineer.

#### **701.4 (Vacant)**

#### **701.5 Payment**

- (1) Costs for sampling, testing, and documentation under 700 are incidental to the work. If the contractor fails to perform required QMP work, the department may reduce the contractor's pay. The department will administer pay reductions under the Non-performance of QMP administrative item.