

## **WSDOT Standard Practice QC 1**

### ***Standard Practice for Cement Producers/Suppliers That Certify Portland Cement and Blended Hydraulic Cement***

#### **1. Scope**

This standard specifies requirements for all producers/suppliers of portland cement and/or blended hydraulic cement.

This standard may involve hazardous materials, operations and equipment. It does not address all of the safety problems associated with their use. It is the responsibility of those using this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

#### **2. Referenced Documents**

##### **2.1 AASHTO Standards**

M 85	Standard Specification for Portland Cement
M 240	Standard Specification for Blended Hydraulic Cement
R 18	Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
T 127	Standard Method of Test for Sampling and Amount of Testing of Hydraulic Cement

##### **2.2 ASTM Standards**

C150	Standard Specification for Portland Cement
C595	Standard Specification for Blended Hydraulic Cement

##### **2.3 WSDOT Standards and Documents**

Current WSDOT <i>Standard Specifications</i>	M 41-10
Current WSDOT Qualified Products List	

### 3. Terminology

- 3.1 AASHTO – American Association of State Highway and Transportation Officials
- 3.2 ASTM – American Society of Testing and Materials
- 3.3 CCRL – Cement and Concrete Reference Laboratory
- 3.4 WSDOT – Washington State Department of Transportation: the agency responsible for the final acceptance of portland cement and/or blended hydraulic cement.
- 3.5 QPL – Qualified Products List
- 3.6 Producer – A production facility that has the capacity for producing and/or grinding portland cement and/or blended hydraulic cement meeting the requirements of the *Standard Specifications* Section 9-01.
- 3.7 Supplier – A company that supplies portland cement and/or blended hydraulic cement that meets the requirements of *Standard Specifications* Section 9-01.
- 3.8 Quality Management Plan – The producer/supplier plan to ensure that the portland cement and/or blended hydraulic cement meets the specification requirements through a systematic program of sampling, testing, and inspection.
- 3.9 Specification Compliance Testing – Complete testing in accordance with the specification requirements for the material identified.
- 3.10 Quality Control Testing – Testing performed per the producer/supplier quality management plan to evaluate the production process.
- 3.11 CAP – Cement Acceptance Program
- 3.12 Manufacturer’s Certification (Mill Test Report) – A document provided by the producer/supplier showing the physical and chemical test results with specification limits for each property tested on the portland cement or blended hydraulic cement.
- 3.13 Portland Cement – Portland cement meeting the requirements of *Standard Specifications* Section 9-01.2(1).
- 3.14 Blended Hydraulic Cement – Blended hydraulic cement meeting the requirements of *Standard Specifications* Section 9-01.2(1)B.
- 3.15 No Production Report – A document provided to WSDOT when portland cement and/or blended hydraulic cement was not produced or shipped during a given month.

### 4. Significance and Use

This standard specifies procedures for accepting portland cement and blended hydraulic cement. This is accomplished by the cement acceptance program that evaluates quality control and specification compliance tests performed by the producers and suppliers according to their quality management plan. Products determined to meet the requirements of this standard are eligible for listing on the WSDOT Qualified Products List (QPL).

## 5. Laboratory and Tester Requirements

The producers/suppliers testing laboratory used to conduct specification compliance testing for the quality management program shall be an AASHTO accredited laboratory and shall maintain AASHTO accreditation while participating in the WSDOT CAP program. Only laboratories that are participants in the CCRL on-site inspection and proficiency sample program and are accredited from the AASHTO Accreditation Program (AAP) are recognized as approved laboratories for this program.

## 6. Qualification of Producers/Suppliers

- 6.1 Producers/Suppliers shall submit a written request to WSDOT for acceptance into CAP and provide the following:
  - A copy of the producer/supplier quality management plan meeting the requirements of Section 7 of QC 1.
  - A copy of the producer/supplier testing laboratory's AASHTO accreditation. One representative 10 pound sample for each type of portland cement and/or blended hydraulic cement along with the corresponding mill test report. Samples shall be taken in accordance with AASHTO T 127.
  - A copy of the Safety Data Sheet (SDS) as applicable for each sample submitted.
  - Mill test reports from the previous three (3) months from the production facility.
- 6.2 WSDOT will evaluate the submittal and may test the samples provided in accordance with Section 9 of QC 1. WSDOT will notify prospective producers/suppliers in writing after completion of the evaluation. All determinations of approval or rejection by WSDOT shall be final.
- 6.3 The producer/supplier shall allow WSDOT to visit and observe the quality control activities and provide samples to WSDOT upon request.

## 7. Producers/Suppliers Quality Management Plan

- 7.1 The quality management plan as a minimum shall identify the following:
  - Facility type.
  - Facility address.
  - Name, email address, and telephone number of the contact person responsible for the quality control of the facility.
  - List each quality control test method to be performed on each type of portland cement or blended hydraulic cement.
  - Name and address of the AAP testing laboratory performing specification compliance testing.
  - Declaration stating that if a test result indicates a lot of portland cement or blended hydraulic cement is not in compliance with the WSDOT specifications, the facility shall immediately notify WSDOT of the lot in question. A representative sample for the production period in question shall be sent to WSDOT for testing.

- Description of the method and frequency of sampling, quality control testing, and specification compliance testing.
  - Type of portland cement and/or blended hydraulic cement to be provided to WSDOT.
  - A statement of compliance with Section 5.
- 7.2 A new quality management plan shall be required whenever changes occur that cause the existing quality management plan to become inaccurate or invalid.

## 8. Documentation Requirements

- 8.1 Each producer/supplier shall certify conformance to *Standard Specifications* for physical and chemical requirements of AASHTO M 85, AASHTO M 240, ASTM C150, or ASTM C595 by means of a mill test report.
- 8.2 A mill test report shall be provided monthly by the cement producer to WSDOT on a continuous basis for AASHTO M 85, AASHTO M 240, ASTM C150, or ASTM C595 cement production.

Cement mill test reports shall be in English and include the following information:

- Name of producer
  - Specific type of cement in accordance with *Standard Specifications* Section 9-01
  - Unique identification number traceable to the date of production
  - Production date
- 8.3 A mill test report shall be provided by the cement supplier to WSDOT whenever a new shipment of AASHTO M 85, AASHTO M 240, ASTM C150, or ASTM C595 imported cement is received for distribution.

Mill test reports shall be in English and include the following information:

- Name of supplier
  - Specific type of cement in accordance with *Standard Specifications* Section 9-01
  - Unique identification number traceable to each shipment
  - Certification date
- 8.4 Separate sequences of mill test reports shall be provided for each individual production facility and a unique lot number traceable to a production run on cement shall identify each report.
- 8.5 The mill test report shall show the test results and the applicable specifications of AASHTO M 85, AASHTO M 240, ASTM C150 or ASTM C595 for each component or property tested and shall show the test requirements specified by WSDOT.
- 8.6 When a production facility does not produce cement in a given month, or no shipments are received by a supplier, the producer/supplier shall notify WSDOT with a no production report for each month of no production or shipment.

- 8.7 Mill test reports and no production reports shall be emailed to the CAP program at following email address: [capprogram@wsdot.wa.gov](mailto:capprogram@wsdot.wa.gov).
- 8.8 The producer/supplier shall notify WSDOT at the email address noted above of any temporary stops in production (greater than one month) or permanent stops in production.
- 8.9 All documentation shall be submitted to WSDOT within 28 days of the last day of the month of production or shipment.

## 9. Quarterly Split Sample

- 9.1 Cement producers/suppliers shall, on a quarterly basis, provide a split sample of each type of portland cement or blended hydraulic cement being produced.
- 9.2 For the purpose of this standard, quarters are defined as: January through March, April through June, July through September and October through December.
- 9.3 Split samples shall be taken from production or shipment in accordance with the producer/supplier's quality management plan.
- 9.4 The production sample shall be split into two portions (approximately 10 pounds each) for each type of cement being produced. One portion shall be retained by the producer/supplier and one portion shall be sent to WSDOT CAP.
- 9.5 The producer/supplier testing laboratory shall conduct chemical and physical testing on their portion.
- 9.6 The sample submitted to WSDOT shall be labeled with the type and lot number traceable to the production run or lot of cement. WSDOT may elect to test the sample.
- 9.7 Samples shall be sent to:
  - WSDOT State Materials Laboratory
  - ATTN: Cement Acceptance Program
  - 1655 S. Second Ave SW
  - Tumwater, WA 98512-6951
- 9.8 The quarterly split sample mill test report shall be emailed to the CAP program at the following email address: [capprogram@wsdot.wa.gov](mailto:capprogram@wsdot.wa.gov).
- 9.9 The producer/supplier shall email CAP at the email address noted in Section 9.8 if no cement was produced/shipped during that quarter and no sample will be submitted.
- 9.10 The quarterly split samples, and accompanying mill test report, shall be submitted to WSDOT within 28 days of the date of sampling.

## 10. Comparison of Quarterly Split Sample Test Results

- 10.1 Results of the split sample testing shall conform to the applicable AASHTO or ASTM specification requirements.
- 10.2 If any discrepancy is identified between the producer/suppliers and WSDOT's test results the producer/supplier shall prepare a response to WSDOT, within 30 days of being notified of discrepancy.
- 10.3 The response shall identify the cause of the discrepancy and describe any corrective action taken.

## 11. Revocation of Qualification

- 11.1 A producer/supplier may have its qualification status revoked and be removed from the QPL if found in nonconformance with the *Standard Specifications* or this standard practice. Causes for removal from the QPL may include, but are not limited to, the following:
  - Failure to comply with requirements of QC 1.
  - Failing test results on production or shipment samples.
  - Failure to notify WSDOT of changes in product formulation.
  - Failure to send in a retained sample for additional testing for a production period with failing test results.

Prior to removing a producer/supplier from the QPL, WSDOT will take appropriate measures to confirm the validity of the information and will confer with the producer/supplier.

## 12. Requalification

- 12.1 Once a product has been removed from the QPL, the producer/supplier may request reinstatement by providing the following written information to WSDOT:
  - The root cause and corrective action taken to prevent future reoccurrences of the problem that caused the removal from the QPL.
  - Updated quality management plan showing compliance with QC 1.
  - Other information and test data as determined by WSDOT.

Provided there is a satisfactory resolution of the initial problem, at WSDOT's discretion, the product may either be reinstated into the QPL or the producer/supplier may be required to reapply to the QPL. All costs of the QPL process shall be borne by the producer/supplier.