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Qualified Products Policy 3 - 2014

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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

QUALIFIED PRODUCT POLICY
FOR
FLY ASH FOR PORTLAND CEMENT CONCRETE
QUALIFIED PRODUCT LISTING 3

1. General

Acceptance of fly ash for use in the Department's work will be based on source qualification, certification by the fly ash supplier that the fly ash complies in all respects with the Department's specifications, job control samples obtained after delivery and annual record samples for testing at the Office of Materials and Research.

It is the contractor's responsibility to ascertain that the fly ash supplier from whom purchases are made have fly ash that complies with the provisions of this policy.

2. Source Qualifications of Fly Ash Suppliers

2.1 Source Qualification. Source qualification is based upon fly ash produced by a specific plant utilizing specific equipment, materials, and processes. Any change in equipment, materials, and processes; shipments of nonspecification fly ash; or violation of any provision of this policy will void any source qualification and require that a new qualification be obtained prior to further shipments. Each fly ash supplier proposing to furnish fly ash for highway work shall provide the following:

2.1.1 Formal request for source qualification in writing to:

Aly Hussein, PhD, PE
Structural Materials Engineer
Office of Materials and Research
SCDOT
PO Box 191
Columbia, SC 29202
(803) 737-6687
Fax: (803) 737-6649
Email: husseinaa@scdot.org

2.1.1.1 Name and address of Fly Ash Supplier

2.1.1.2 Class of Fly Ash

2.1.1.3 Name and Location of Fly Ash Source

2.1.1.4 Name and Location of Coal Source

2.1.1.5 Number of boilers at plant and tons of fly ash produced per hour by each boiler.

- 2.1.1.6 Detailed quality control program. The quality control programs must meet the minimum requirements of Section 3 of this policy.
- 2.1.1.7 A statement certifying agreement with, and acceptance of, all provisions of this policy; certifying that all information and data furnished with this request for source approval is accurate and any change in the information will be reported immediately; and further certifying that, upon any change in equipment, materials, and/or processes used in the production of fly ash shipment of fly ash to highway work will cease until reapproval of the source is obtained.
- 2.1.2 Submit test data verifying compliance to the specifications and compliance to the minimum quality control sampling and testing as described in Section 3 of this policy. This test data shall represent the material produced in the last one-year period.
- 2.1.3 Submit a sample of fly ash along with the complete report of the tests required by the specifications to the Structural Materials Engineer for verification testing. The sample must have been split and analyzed by the laboratory, which is performing the quality control testing.
- 2.1.4 The fly ash source will be placed on the Department's list of qualified fly ash suppliers provided the data submitted with the request and test results verify that a uniform quality product conforming to the specifications being produced, that the fly ash supplier's quality control program provides reasonable assurance that only fly ash meeting the requirements of the specifications be shipped **and that the fly ash being produced will be used in SCDOT work.**

3. Suppliers Minimum Quality Control Program

- 3.1 The fly ash supplier shall provide a quality control program meeting at least the minimum sampling and testing frequencies established in ASTM C 311 as referenced in AASHTO M 295. The tonnage units expressed in this standard are interpreted to refer to as-marketed material.
- 3.2 Each sample representing 400 tons, or the sample representing the quantity sampled when it is less than 400 tons shall be tested for the following:
 - Fineness (sieve no. 325)
 - Moisture Content
 - Loss on Ignition

Specific Gravity and all other physical and chemical tests required by the specifications shall be made on composite samples representing each 3200 tons, the composite sample for this purpose being prepared by combining equal parts of the 400-ton samples.
- 3.3 The sampling, tests, and testing frequencies required may increase from the minimum depending on the particular production of the plant. In all cases the

quality control program shall be submitted to the Department's Materials & Research Engineer for qualification. The quality control program submitted for qualification must be detailed and include at least the following:

- 3.3.1 Name and location of company or firm performing the quality control sampling.
 - 3.3.2 Name and location of company or firm performing the quality control testing.
 - 3.3.3 Name and title of the individual directly responsible for the quality control program at the source.
 - 3.3.4 Sampling points, sampling frequency, and tests to be performed.
 - 3.3.5 Procedures and equipment for handling, storage and shipment of fly ash.
 - 3.3.6 Number of storage silos and capacity of each.
 - 3.3.7 Action to be taken when quality control testing indicates borderline and non-specification fly ash has been produced.
- 3.4 The quality control laboratory shall be properly equipped and staffed to perform the tests required for an accepted quality control program. Continued qualification of the supplier will depend on the comparison of test results with the Department's Office of Materials & Research. If major differences are found, an attempt to resolve them shall be made as quickly as possible. Continued unresolved differences in test results will be considered a basis for discontinuing qualification of the fly ash supplier. Comparison tests will be performed when deemed necessary by the Department's Materials & Research Engineer.
- 3.5 All quality control test reports shall be on letterhead paper identifying the laboratory performing the tests and shall contain the following information:
- 3.5.1 Date of Report
 - 3.5.2 Fly Ash Source
 - 3.5.3 Class of Fly Ash
 - 3.5.4 Silo Number
 - 3.5.5 Boiler Unit Number (If plant is equipped with more than one boiler)
 - 3.5.6 Sample Control Number
 - 3.5.7 Test Report Number
 - 3.5.8 Date Sampled

3.5.9 Test Results

3.5.10 Statement certifying that the fly ash represented by the test results meets the requirements of the South Carolina Department of Transportation Specifications. (Note: If the test results do not meet specifications, in lieu of the certified statement, documentation of the disposition of the fly ash represented by the test report shall be submitted with the test report).

3.5.11 Signature and title of responsible official at the control laboratory.

3.6 Sample test records shall be available for inspection by Department Personnel for at least three years after the fly ash has been tested.

4. Certification and Reporting By The Fly Ash Producer

4.1 Distribution of Test Reports.

4.1.1 After source qualification, a copy of all future quality control test reports shall be submitted to the Department's Office of Materials & Research.

4.1.2 When fly ash is delivered directly to a commercial ready mix concrete plant, which produces concrete for the Department' work, a copy of the test reports covering the material shipped shall be furnished to the ready mix plant.

4.2 Certification of Shipments. For each shipment of fly ash, a certificate shall be furnished with the following data: in accordance with Section 4.2.1 of this policy.

Fly Ash Source	Date Shipped
Class of Fly Ash	Name of Purchaser
Silo Number	Destination
Number of Tons Shipped	

This certificate shall also contain the following or similar wording:

"The undersigned certifies that the fly ash in this shipment was loaded from the pretested silo indicated above and that it complies with SCDOT specifications for (Class Designation). The fly ash was tested under laboratory number _____, and no fly ash not covered by a certified test report has been added to the silo."

Distribution of the certificate shall be made as follows:

4.2.1 When fly ash is delivered directly to a project site, or a maintenance work order, the certificate shall accompany each transport and shall be delivered to the appropriate SCDOT representative, except that the copies for the Department's Structural Materials Engineer shall be mailed.

4.2.2. When fly ash is delivered directly to a commercial ready mix concrete plant which produces concrete for Department's work, the certificate shall be

furnished to the ready mix concrete plant with each transport, and copies for the Department's Office of Materials & Research shall be mailed.

The ready mix concrete plant shall furnish a copy of the certificate to the Project Engineer(s).

5. Responsibilities of the Department's Project Personnel

- 5.1 Fly ash delivered to the project or work order site may be used provided a certification has been received with each shipment. Concrete produced by a qualification commercial ready mix concrete plant may be accepted, insofar as the fly ash is concerned, provided the concrete plant has furnished the required data as outlined in Section 4 of this policy.

In case a shipment is received without the proper certificate, the fly ash shall not be used until the required certificate has been furnished.

- 5.2 Fly ash delivered for use in State Highway work will be sampled by a representative of the Department at the approximate frequencies outlined below. The frequencies shown apply to each source of fly ash and are minimum; additional samples will be obtained if there is a question concerning the quality of fly ash.

Each sample will consist of approximately 10 lbs. (Approximately one gallon) and will be obtained in such a manner, and at such point, that the sample will: (1) be representative, (2) not be contaminated, and (3) represent only one source and class of fly ash.

The samples will be placed in plastic jugs or other moisture proof containers that will insure the samples against contamination. The samples will be delivered, or will be mailed or shipped, to the Department's Office of Materials & Research as soon as possible. It will not be necessary to wait for results of tests on job control samples submitted to the Department's Office of Materials & Research.

- 5.2.1 Fly ash used by approved commercial ready mix plants in production of concrete for State Highway work will be job control sampled at the rate of one (1) sample for 50 tons, or fraction thereof, used on the project. Insofar as possible, at least one sample shall be obtained for each project that a sample will not be required if the project contains less than 35 cubic yards of concrete.

- 5.2.2 When fly ash is delivered to a project site, or to a central concrete plant set up for a specific project, to be used in concrete paving, structural concrete, or soil stabilization, job control sampling shall be at the rate of one (1) sample for each 100 tons, or fraction thereof, received. On a Project requiring less than 5 tons of fly ash, a sample will not be necessary.

6. Responsibility of the Office of Materials & Research

- 6.1 The Department's Office of Materials & Research will receive the job control samples taken by the project personnel. Randomly selected samples will be tested to verify the quality of the fly ash. Each submitted sample will be acknowledged with a test report to document the records.
- 6.2 In the event a sample fails, check samples may be submitted for testing. If failures occur, the Structural Materials Engineer will evaluate the tests to determine action to be taken under Section 7 of this policy.
- 6.3 The Office of Materials & Research will maintain the Department's list of qualified fly ash suppliers and monitor the supplier's quality control program.

7. Non-complying Fly Ash Samples

When testing of fly ash indicates that the fly ash fails to comply with the specification requirements, the Structural Materials Engineer will evaluate the failure and probable effect of the failing requirement on the quality of the product produced with the fly ash. If the failure is of sufficient concern, he may at his discretion order that the fly ash supplier suspend all shipment for highway work until such time as the cause(s) of the failure have been corrected to his satisfaction.

Where the non-complying fly ash has been used in the work, a decision will be made by Department Personnel to determine the quality of the structure and applicable penalties where necessary or instruct that the structure be replaced.