

ACCEPTANCE PROCEDURES FOR FLY ASH FOR CONCRETE

1. SCOPE: Fly ash used in concrete on KYTC construction projects must be on the KYTC's "List of Approved Materials". The following requirements must be met, by the supplier, to gain inclusion on the list and be able to furnish fly ash for acceptance on the basis of certification:
2. CHEMICAL TREATMENT (OPTIONAL)
 - 2.1 Request for Chemical Treatment Approval
 - 2.1.1 Submit a written Quality Control (QC) procedure and include:
 - Identify treatment
 - Dosage and method of application of chemical treatment
 - QC procedures utilized to assure the fly ash has been properly treated
 - Proposed field verification procedure to quantify chemical treatment
 - Proposed trip ticket indicating treatment of fly ash and dosage, including statement of any known admixture incompatibilities
 - 2.1.2 Three mix design evaluations will be required with each design utilizing treated and untreated fly ash for a total of six designs. Each design shall be based on the KYTC Class AA concrete specifications. Each Design must utilize a different set of KYTC approved ingredient materials (cement, coarse and fine aggregate, admixtures, etc.). The mixes shall be tested with varying air entrainment dosages. The dosages shall start at 0.0 ounces/cwt and increase at 1.0 ounce/cwt increments until the mix achieves an 8% plastic air content. Each mix shall also include test data for slump, compressive strength (3, 7, 28 and 56 days) and temperature. Tests shall be performed in accordance with the Kentucky Method that represents each test.
 - 2.1.3 Mix designs shall be submitted and approved by the Division of Materials prior to laboratory testing.
 - 2.1.4 Hardened air results (ASTM C457) shall be provided for the treated and untreated mixes that most closely obtain a plastic air content of 4.0%, 6.0% and 8.0%.
 - 2.1.5 All laboratory testing shall be witnessed and reported on by a CCRL accredited laboratory technician from a laboratory jointly accepted by the fly ash supplier and the KYTC.
3. SATISFACTORY PAST RECORD
 - 3.1. Fly ash from the proposed source shall have met ASTM C618 requirements for the previous three months.

- 3.2. Fly ash from the proposed source, that has not received an approved chemical treatment, shall have had a loss on ignition (LOI) of 3.0% or less and a fineness in conformance with ASTM C618 for the previous three months.
- 3.3. Fly ash from the proposed source, that has received an approved chemical treatment, shall have had a loss on ignition (LOI) of 6.0% or less and a fineness in conformance with ASTM C618 for the previous three months.

4. SATISFACTORY TEST RESULTS AND INSPECTIONS BY THE DIVISION OF MATERIALS

- 4.1. The initial source sample shall meet the requirements of ASTM C618 as modified by Section 844 of the Kentucky Standard Specifications for Road and Bridge Construction.
- 4.2. The Division of Materials will conduct periodic inspections and obtain split samples of fly ash from the producer for each approved silo. Inspections and test results must be acceptable by the Division to remain on the List of Approved Materials.

5. SATISFACTORY QUALITY CONTROL PROGRAM

- 5.1. The fly ash distributor shall submit a quality control plan to the Division of Materials for review and approval.
- 5.2. A graduate chemist or laboratory technician shall be employed at the power plant site to perform tests for LOI, moisture and fineness. If a laboratory technician is utilized, a formal in-house competency review of the technician must be performed at a minimum of once per year.
- 5.3. A suitable testing facility located at the power plant with the necessary equipment to perform LOI, moisture, and fineness tests shall be provided by the distributor.
- 5.4. Complete ASTM C618 tests shall be performed at least monthly from composite samples for each approved silo with a copy of the results forwarded to the Division of Materials. All tests reports submitted shall show the date of sampling at the power plant for each sample. No more than sixty days shall have elapsed between the sampling date and the date test reports are received by the Division of Materials.
- 5.5. LOI, moisture, and fineness tests in accordance with ASTM C618 shall be performed at least twice per week for each approved silo. These reports are to be submitted with the complete ASTM C618 test data specified above.
- 5.6. Laboratories performing tests on fly ash for conformance to ASTM C618 (monthly samples) shall participate in the laboratory evaluation program conducted by the Cement and Concrete Reference Laboratory (CCRL) of ASTM. This requirement does not apply to routine process control testing performed at the power plant for fineness, moisture, LOI, and uniformity. The Distributor or CCRL shall forward a copy of the laboratory inspection

report and Certificate of Accreditation to the Division of materials.

- 5.7. Sources will be removed from the "List of Approved Materials" when monthly tests reports are not received for two consecutive months or when less than eight monthly reports are received for any twelve month period. Allowances for power plant down time shall be given provided documentation is submitted listing the time period that the power plant (Unit number) was down.
- 5.8. All test results, that is, both the complete ASTM C618 and the twice weekly or more frequent tests for LOI, moisture and fineness; shall be kept by the distributor for a period of not less than three years.

6. SATISFACTORY SHIPPING REQUIREMENTS

- 6.1. Each shipment intended for use on a KYTC project shall be accompanied by a signed certification from the supplier stating that the fly ash complies with ASTM C618 except as modified by KYTC's specifications for LOI.
- 6.2. Each shipment intended for use on a KYTC project shall be accompanied by the latest actual test results for LOI and Fineness.
- 6.3. The certification must include the silo identification that the shipment came from.

APPROVED

DIRECTOR
DIVISION OF MATERIALS

DATE

06/02/08

Kentucky Method 64-325-08

Revised 06/22/08

Supersedes KM 64-325-08

Dated 02/22/08

Attachments

Km32508.doc

**Kentucky Transportation Cabinet (KYTC)
Division of Materials**

QUALITY CONTROL PLAN FOR FLY ASH

I. DISTRIBUTOR

NAME:

ADDRESS (STREET OR PO BOX):

CITY:

STATE:

ZIP CODE:

CONTACT PERSON:

PHONE NUMBER:

CLASS OF FLY ASH: ☐ CLASS F ☐ CLASS C

II. POWER COMPANY

NAME:

POWER PLANT NAME:

POWER PLANT LOCATION:

PHONE NUMBER:

UNIT NUMBERS THAT PRODUCE KYTC SPECIFICATION FLY ASH:

LIST SILO(s) USED FOR STORAGE:

LIST THE UNIT NUMBER(s) THAT SUPPLIES EACH SILO.

SILO#	: UNIT#	SILO#	: UNIT#
SILO#	: UNIT#	SILO#	: UNIT#
SILO#	: UNIT#	SILO#	: UNIT#
SILO#	: UNIT#	SILO#	: UNIT#

LIST COMMENTS, IF ANY:

III. LABORATORY FOR (WEEKLY) SAMPLING AND TESTING

LABORATORY NAME:

ADDRESS (STREET OR PO BOX):

CITY:

STATE:

ZIP CODE:

CONTACT PERSON:

PHONE NUMBER:

NAME OF SAMPLING PERSON:

NAME OF TESTING PERSON:

IS LABORATORY CCRL ACCREDITED? ☐ YES ☐ NO

DOES THIS LABORATORY HAVE THE EQUIPMENT TO TEST FOR LOI (ASTM C311),
MOISTURE (ASTM C311), AND FINENESS (ASTM C430)?

☐ YES ☐ NO

DESCRIBE THE LABORATORY BUILDING USED FOR WEEKLY SAMPLES:

MINIMUM TESTING FREQUENCY FOR WEEKLY SAMPLES: PER WEEK

POINT OF SAMPLING: ☐ SILO ☐ TANKER ☐ OTHER:

IV. LABORATORY FOR (MONTHLY) TESTING - ASTM C618

NAME:

ADDRESS (STREET OR PO BOX):

CITY: STATE: ZIP CODE:

CONTACT PERSON:

PHONE NUMBER:

IS LABORATORY CCRL ACCREDITED? ☐ YES ☐ NO

MINIMUM TESTING FREQUENCY FOR MONTHLY SAMPLES: PER MONTH

POINT OF SAMPLING: ☐ SILO ☐ TANKER ☐ OTHER:

V. OTHER COMMENTS:

NOTE: WHEN ANY CHANGES IN THE ABOVE INFORMATION OCCURS, THE DIVISION OF MATERIALS MUST BE NOTIFIED IN WRITING.

SIGNED (DISTRIBUTOR OFFICIAL):

DATE: