

ACCEPTANCE POLICY FOR PORTLAND CEMENTS

GENERAL:

These instructions cover the acceptance procedures for portland cements supplied for use in Nebraska State Highway construction and maintenance.

The State of Nebraska Standard Specifications, Supplemental Specifications, and Materials Sampling Guide for Highway Construction are a part of these instructions. This requirement includes all shipments by rail, truck, or barge supplied directly to contractors through small suppliers or ready mix plants.

CERTIFIED MILL ANALYSIS:

Cement mills are required to furnish the Materials and Research Division a copy of their certified mill analysis each time the cement produced for the use in Nebraska Department of Roads (NDOR) project. The certified mill analysis report shall include the location of the mill, brand name, type of cement, grinding period, and the results of the physical and chemical tests determined according to ASTM C-150 (Standard Specification for Cement) or C-595 (Standard Specification for Blended Hydraulic Cements).

APPROVED PRODUCTS LIST:

Cement on the NDOR's Approved Products list can be used on the project when accompanied by a manufacturer's certification. The requirements for being on the NDOR's Approved Products list approval are:

1. Twenty consecutive passing mill samples, composed of five samples each from four separate grinds, tested at the NDOR central laboratory (Chem. Lab and PCC Lab). The five samples should be obtained throughout the period of the grind.
2. The mill analysis and the NDOR test results for the twenty consecutive passing samples and the monthly mill samples (See Mill Sampling Procedure) must meet the ASTM C-150 requirement guidelines for portland cements or ASTM C 595 for blended cements. In addition for blended cement requirements, NDOR requires the total Pozzolan Class F fly ash shall be 25 ± 2 percent and meeting ASTM C 1567 specifications with percentage (%) of expansion less than 0.1 at 28 days. Cements marketed as Type II or Type I/II must meet the chemical analysis specifications of ASTM C-150. One specification is the amount of tricalcium aluminate (C_3A) cannot exceed 8 percent if the cement is to qualify as a type II. There is no C_3A limit for type I cement.
3. If the monthly mill sample, or any field sample, is out of tolerance, the mill will be notified by the Pavement Cement Concrete Engineer. If a chemical test is out of tolerance, the check sample will be re-tested using ASTM C 114 as the referee method.
4. If tolerance problems are not corrected within 30 days following notification, the cement in question will be removed from NDOR Approved Products List.
5. With the approval of the Pavement Cement Concrete Engineer, conditions for acceptance may also be met by furnishing test data from another state highway department provided the test were conducted within one year of application date.



MILL SAMPLING PROCEDURE:

The sampling procedure requirement for cements is one 10-lb sample. The sample shall be taken on the first production day of each month for each type produced. The sample will be a composite of that day's production. Each Sample will be shipped in a leak and moisture resistant container, and will be identified with the location and name of the production mill, type of cement, date produced, and storage bin number. The accompanying paperwork, including the mill analysis shall be for the sample being submitted to NDOR, will be placed in an enveloped to keep papers clean.

MILL SAMPLE SHIPPING:

The samples are to be shipped to the NDOR Materials & Research facility at one of the addresses below. The producer will be responsible for the cost of shipping.

WHEN USING THE U.S POST SERVICE:

Portland Cement Concrete Laboratory
Nebraska Department of Roads
Materials and Research Division
P.O Box 94759
Lincoln, Nebraska 68509-4759

WHEN USING UPS:

Portland Cement Concrete Laboratory
Nebraska Department of Roads
Materials and Research Division
1400 Nebraska Highway 2
Lincoln, Nebraska 68509-4759

CERTIFICATES OF COMPLIANCE:

Certificates of Compliance shall be issued by the producing mills. Copies of the certificates must accompany each load from a terminal. The forms must include the following:

- Name and Location of the producing cement mill
- Consignee and destination of the shipment
- Date shipped from the producing mill (not the date shipped from the terminal)
- Railroad car or truck identification number
- Brand and type of cement
- Quantity of cement shipped
- Certified test number, date, and bin or silo number

Each form for a truck shipment must include a non-repeated order number or identification number. The following signed certification statement or similar wording must also be included on the form.

This is to certify that this shipment of cement was taken from the bin indicated and that it meets the specification equipments of the Nebraska Department of Roads.

This certification must be signed at the mill loading site or at the terminal location. When cement is shipped from a terminal, a copy of the mill certification must accompany the load. The actual quantity shipped to a ready mix plant or job-site must be shown on the certification.

SAMPLING FROM RAILROAD CAR OR TRUCK:

Obtain samples of cement using a slotted tube sampler (figure1). It shall be between 5 and 6 feet long and approximately 1 ³/₈ inch in outside diameter and consist of two polished brass telescopic tubes with registering slots that are opened or closed by rotation of the inner tube, the outer tube being provided with a sharp point to facilitate penetration. Take samples from well-distributed points and various depths of the cement so that the samples taken will represent the cement involved.

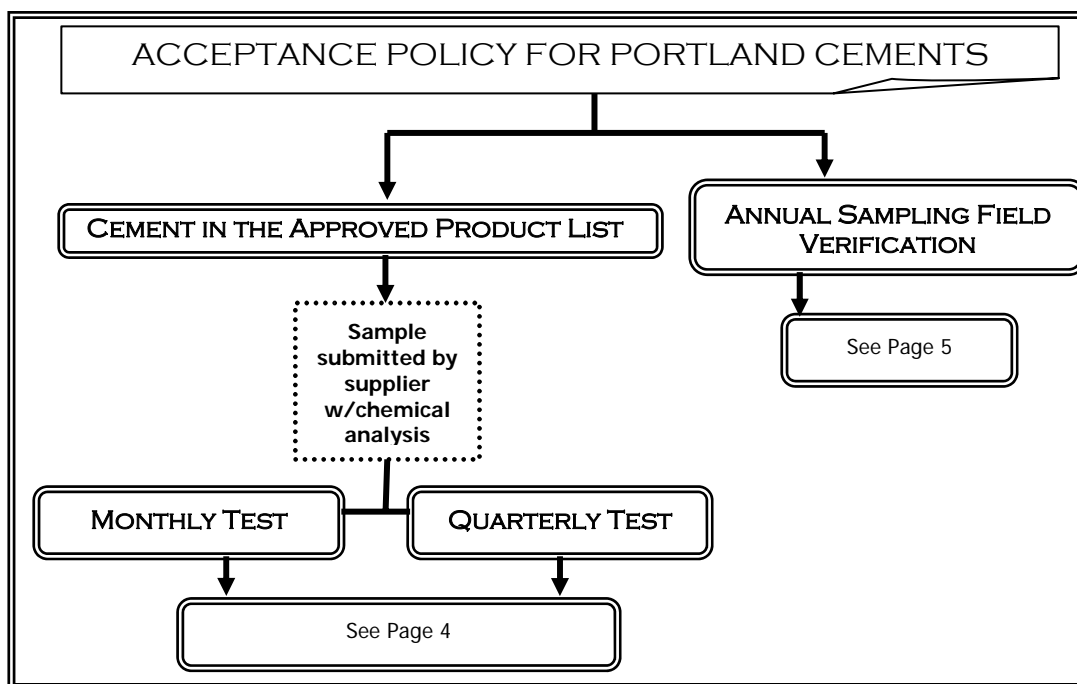


Figure1.-Slotted tube Sampler for Bulk Cement

PROTECTION OF SAMPLES:

Place samples directly in moisture-proof airtight containers to avoid moisture absorption. A 10 pound sample could be placed in a gallon metal container in water proof bags. After placing the material in a moisture proof container, it shall be immediately sealed.

To establish procedures for inspecting, sampling, and accepting Portland cement, the Materials & Research Division has established the following flow charts to represent the procedures for acceptance policy of cement.



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CEMENT IN THE APPROVED PRODUCT LIST

SAMPLE
SUBMITTED BY
SUPPLIER
W/CHEMICAL
ANALYSIS

MONTHLY TEST

CHEM. LAB
Chemical Analysis

Check Chemical Analysis
according to NDOR oxide
ratio.

Not OK

Sample Verification:
Notify PCC Lab to run
ASTM C 1567
Alkali Silica Reaction Test

QUARTERLY TEST

PCC. LAB:

ASTM C 1567
Alkali Silica Reaction Test

Not OK

Sample Verification:
(Re-run)
ASTM C 1567
Alkali Silica Reaction Test

Not OK

Sample Verification by
Independent Lab:
ASTM C 1567
Alkali Silica Reaction Test

Not OK

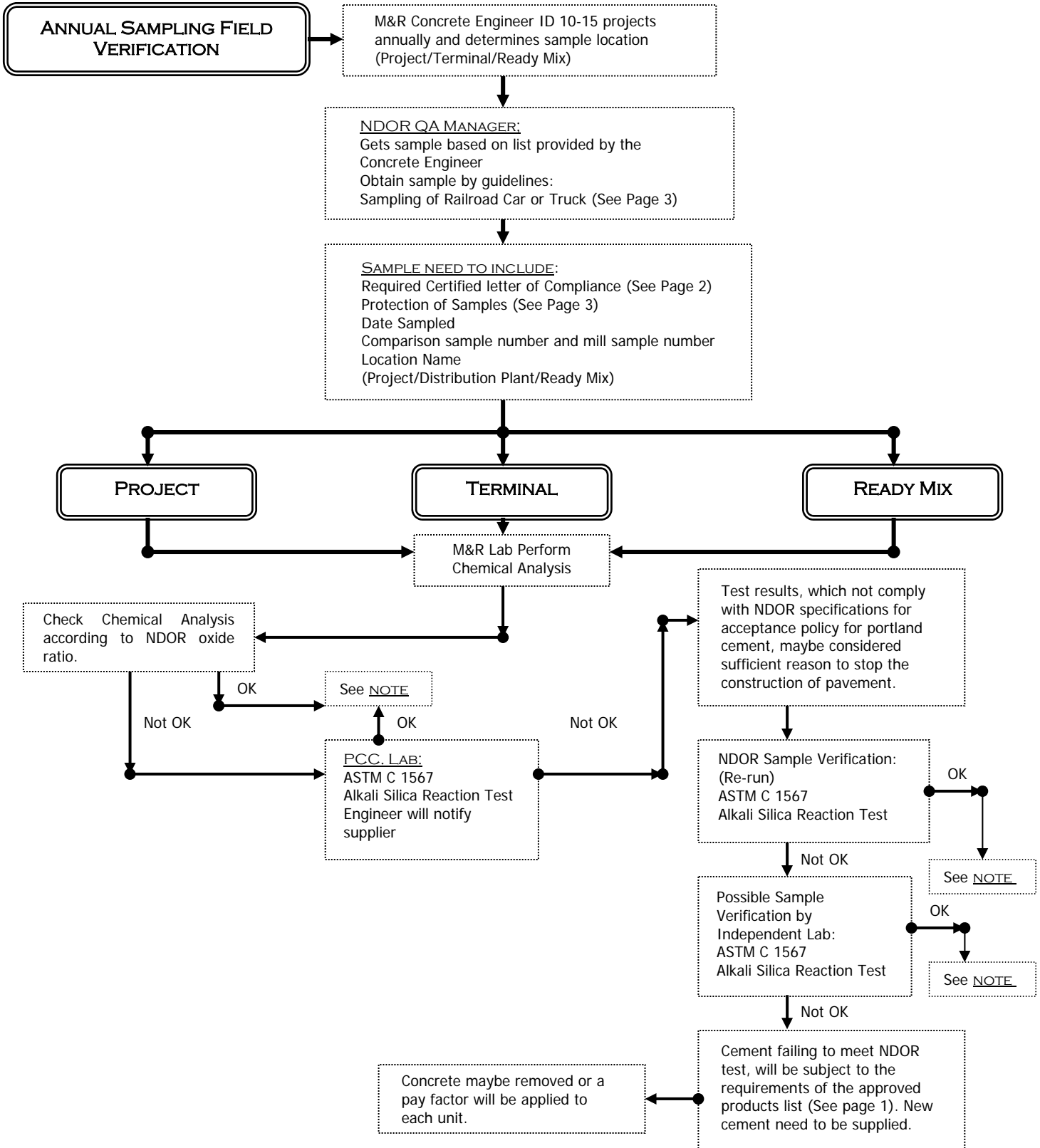
PCC. LAB:
Physical Analysis
ASTM C109 test Method for compressive
Strength of Hydraulic Cement Mortar
ASTM C151 Test Method for Autoclave
Expansion of Portland Cement
ASTM C185 Test method for Air Content
of Hydraulic Cement Mortar
ASTM C187 Test method for normal
Consistency of hydraulic Cement by Vicat
Needle
ASTM C204 Test method for Fineness of
Hydraulic Cement by Air Permeability

RECORD IN SITE MANAGER:

Chemical/Physical Analysis
Alkali Silica Reaction Test
Results

Cement resulted insufficient to
meet NDOR requirements, will
be subject to the requirements
of the approved products list
process of the acceptance policy
for portland cements products
list (See page 1)

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NOTE: Contractor may continue using cement supplied