



Sampling Materials

General Information

Acceptance of Contractor-furnished materials is based on tests of representative samples. To ensure reliable test results, samples must be carefully taken and be truly representative of the material to be tested. Accordingly, all Structure Construction field personnel must familiarize themselves with the proper sampling procedures.

Additional information relative to sampling materials may be found in Chapter 8 of the *Construction Manual*.

Classes of Samples

The *Construction Manual* lists six different classes of samples. In general, however, Structure Construction field personnel will be concerned only with "Initial Samples", "Acceptance Samples", and "Independent Assurance Samples". Following are descriptions of these classes of samples.

1. Initial Samples and Tests or Process Control Samples and Tests.

These samples are taken after the award of the contract to determine whether the material will meet all specification requirements. Usually taken by job personnel.

2. Acceptance Samples and Tests (formerly Control Samples and Tests).

These samples are taken to determine the quality of materials or work being performed by the Contractor. Acceptance (Job Control) Samples include the following:

- A. Samples of material or construction work taken and tested at the construction site by project personnel.
- B. Samples of materials or construction work taken at the construction site by project personnel and tested at Headquarters or District laboratories with results reported to the Resident Engineer.
- C. Samples of materials taken by lab personnel at the production or processing plant, shipping point, or other source of origin, and tested at Headquarters or District laboratories with results reported to the Resident Engineer.

3. Independent Assurance Samples and Tests (formerly Progress Samples and Tests)

Independent Assurance (Progress) samples are the responsibility of the District Materials Engineer and will be taken by the District Materials Engineer or his authorized representative. Acceptance (Job Control) samples may be used for Independent Assurance (Progress) samples provided the sampling and subsequent handling of samples is done under the observation of personnel authorized to take Independent Assurance (Progress) samples.

Frequency of Sampling

After work is underway, Acceptance (Job Control) samples will be taken from time to time to verify that the materials being furnished comply with contract requirements.

The normal frequency of Acceptance (Job Control) sampling is tabulated in Chapter 8 of the *Construction Manual*. Note that the frequency shown should be considered as a guide for average conditions. Material which is uniformly consistent and well within the specification limits may require somewhat less frequent sampling, whereas, borderline materials must, of necessity, be sampled with greater frequency.

Sampling Methods

The importance of accurate, representative sampling cannot be over emphasized. It should be obvious that unless the sample is truly representative of the material to be tested, any examination or test of the sample will apply to the sample only and not to the material from which it was taken.

Sampling methods for Portland cement concrete and concrete materials are described in detail in the Office of Structure Construction Manual of *Construction Manual*, and reference is made thereto.

Sampling methods for other materials may be found in the *Construction Manual* and in the various California test method descriptions.

Identification of Samples

All materials sent to the lab for testing must be clearly identified and accompanied by a properly completed sample identification form. Form TL-101 is used for aggregate materials, water and admixtures. Form TL-502 is used for concrete test cylinders and Form TL-518 for cement.

Chapter 8 of the *Construction Manual* gives instructions for identifying concrete compressive strength samples.

The lab will not test fine aggregate for Portland cement concrete if the sample does not conform to specification grading when it is received unless specifically requested to do so on the sample identification form.

If teletype or telephone results are needed, this should be noted on the identification form along with the address or phone number of the person who is to receive the results.

Shipping Samples

Samples shipped by freight or express to the Transportation Laboratory for testing must be sent collect.

Bills of lading accompanying shipments often state "2 packages" without any notation as to their content, in which case the shipment will take a Class 1 rate. Please make sure that bills of lading properly identify contents, as for example "2 packages soil samples or 2 cylinders concrete samples". The shipment will then take a Class 4 rate, which is considerably less expensive.

All shipments of samples to the laboratory for testing shall be by the most economical means available: This is not meant to rule out all express shipments; however, express shall be used only when speed is essential or for a small package when there is no appreciable difference in cost.

To properly identify samples shipped by common carrier, the shipping tag must be filled out completely. Show the contract number, the county and route number, name of shipper (Resident Engineer) and town or station from which the shipment is made.

Showing "Department of Transportation" as the shipper, is not sufficient. It is also necessary that the information on the shipping tag and the bill of lading agree, since this is the only way carriers can identify the samples and make prompt delivery.

Prior to shipment of samples of any type of material to the Transportation Laboratory, the Structure Representative should contact the nearest District Lab. Many of the routine tests can be run there, and most have freight contracts and will handle this phase of the operation for the field personnel.

Records of Samples

Records of all samples are to be maintained in the project files in accordance with instructions contained in the *Construction Manual* and elsewhere in this section of the *Bridge Construction Records and Procedures*.