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## INDEPENDENT ASSURANCE PROFICIENCY & TESTING FOR HMA

### GENERAL

The HMA Proficiency Program is part of the Independent Assurance Program described in [IM 205](#). The HMA Proficiency Program provides participating laboratories with a means to:

- Check both the instrument and the operator under actual testing conditions.
- Compare individual test results with the average of a large body of results so that corrective action may be taken where wide discrepancies occur.
- Evaluate the quality of test results, thereby reducing the risk of dispute due to testing errors.

Each accredited and qualified Laboratory and certified staff shall establish and maintain their proficiency by following program described herein.

A project approach for independent assurance may be used for RCE, county, city, and consultant laboratories.

### PROFICIENCY SAMPLE

The Central Materials Laboratory will prepare and send out proficiency samples during the construction season (April through September). The samples and tests for laboratories will be as follows:

#### A. District Laboratories

1. Asphalt Binder
  - a.  $G^*/\sin \Delta$
2. HMA Mix
  - a.  $G_{mb}$  Laboratory Density
  - b.  $G_{mm}$  Maximum Specific Gravity
  - c. % Binder, Ignition Oven
  - d. Gradation, Ignition Oven
3. Combined Aggregate
  - a. Gradation
  - b.  $G_{sa}$  Apparent Specific Gravity (every other sample)

- c.  $G_{sb}$  Bulk Specific Gravity (every other sample)
  - d. Percent Absorption (every other sample)
  - e. Fine Aggregate Angularity (every other sample)
  - f. Sand Equivalency (every other sample)
- B. HMA Laboratories
1. HMA Mix
    - a.  $G_{mb}$  Laboratory Density
    - b.  $G_{mm}$  Maximum Specific Gravity
  2. Combined aggregate
    - a. Gradation
- C. Aggregate Laboratories
1. Gradation

### **PROFICIENCY SAMPLE FREQUENCY**

District Laboratories will receive a set of proficiency samples monthly April through September. The samples will be tested and the results reported within 14 calendar days of receipt. Depending on demand, the frequency at which the Central Materials Lab re-supplies the Districts with sampling material may be reduced to twice per year (typically April and July) or as needed.

HMA laboratories and HMA aggregate laboratories will pick-up proficiency samples one to three times per year depending on how many projects are done in a particular year. The frequency criteria is as follows:

- A sample shall be picked up for the technician's first HMA project of the construction season.
- At 3 months from the first sample pickup, the technician must pick up a second sample in order to continue performing acceptance testing.
- At 3 months from the second sample pickup, the technician must pick up a third sample in order to continue performing acceptance testing.

Each certified technician routinely working in the laboratory shall perform the proficiency tests and report the results within 14 calendar days of receipt.

### **TEST RESULT ANALYSIS**

Test results from the proficiency samples will be analyzed using the current AASHTO Material Reference Laboratory (AMRL) procedure. The analysis compares the results from each participant and each District and Central Laboratory to the overall mean. Test results will also be compared to the Central Materials Laboratory results.

Any test result that is 3.0 standard deviations or greater from the mean will be considered failing. Two consecutive proficiency sample results that are 2.0 standard deviations or greater from the mean will be considered failing.

In the event of a small data set or large or small variation within a data set, the individual results will be compared with the Central Laboratory results. [IM 216](#) will be used to compare the results. Proficiency test results beyond the tolerance will be considered failing.

### **INVESTIGATION OF FAILING TEST RESULTS**

The technician with failing test results shall review the calculation, test procedures, and perform a calibration if warranted. When there are two or more consecutive failing results, the Central Materials Laboratory or the District Material Engineer will contact the technician and arrange to conduct an evaluation of the procedures and equipment to correct any deficiencies. **Three** consecutive failing results by a technician will constitute unsatisfactory performance as defined in [IM 213](#) and become a part of their permanent file.