

## **INDIANA DEPARTMENT OF TRANSPORTATION QUALIFIED LABORATORY AND TECHNICIAN PROGRAM**

The purpose of the Qualified Laboratory and Technician Program is to establish policies, procedures, and guidelines to assure that quality materials and construction practices are incorporated into all Department contracts. The Qualified Laboratory and Technician Program applies to all personnel conducting acceptance sampling and testing procedures.

The primary objective of the Qualified Laboratory and Technician Program is to establish programs that assure the Acceptance Personnel are capable of conducting the appropriate sampling and testing procedures correctly. Obtaining this objective will assure that maximum quality control and superior highway materials are incorporated into the completed highway infrastructure.

To accomplish the goals of the program, the Department will provide the following:

1. The Department Office of Materials Management Laboratory will maintain AASHTO Accreditation.
2. The Office of Materials Management Laboratory will conduct on-site inspections in the District laboratories to assure the performance of the test equipment and the qualification of the District Laboratory technicians.
3. The Office of Materials Management Laboratory will conduct on-site inspections in the District Production laboratories to assure the performance of the test equipment and the laboratories capability to conduct the testing.
4. The Office of Materials Management Laboratory will maintain a sample proficiency program with the District and Production laboratories to ensure uniformity of test results.
5. The Department will give written examinations to assess the knowledge of each sampling and testing procedure.
6. The Department will review proficiencies for each of the sampling and testing procedures.
7. The Department will maintain the related programs consisting of the Independent Assurance Program, the Certified Aggregate Producer Program (ITM 211), the Certified Hot Mix Asphalt Producer Program (ITM 583), the Certified Precast Concrete Producer Program (ITM 813), the Certified Precast Prestressed Concrete Producer Program (ITM 814), and their respective audit programs.

The Indiana Qualified Laboratory and Technician Program has been developed in accordance with the provisions of Federal Regulations 23 CFR 637, Subpart B, entitled Quality Assurance Procedures for Construction.

## **Terminology**

AASHTO. American Association of State Highway and Transportation Officials

Acceptance Program. The procedures of the Department for the determination of the quality and conformity to the contract specifications

Acceptance Personnel. Representatives of the Department, Contractor, Producer, Consultant, or Local Public Agency who conduct contract specific sampling or testing of materials or products for compliance with the contract requirements. Personnel include Project Engineers, Project Supervisors, technicians, and seasonal employees.

ACI. American Concrete Institute

ASTM. American Society for Testing and Materials

Certified Technicians. Industry representatives who have successfully completed the requirements of the Aggregate, Hot Mix Asphalt, Concrete, or ACI Level I Concrete Training Programs

Independent Assurance Program. The verification of the sampling and testing procedures used in the acceptance program which are conducted by a Department technician but are not used as part of the acceptance of any contract materials or products.

Laboratory Proficiency Samples. Homogeneous samples prepared by the Office of Materials Management that are distributed and tested by multiple laboratories. The test results are compared to assure the laboratories are obtaining similar results.

Materials Services Section. Section within the Office of Materials Management responsible for providing technical and quality control guidance for maintaining the Office of Materials Management AASHTO Accreditation and District Testing functions

Qualified Laboratories. Laboratories that have demonstrated the capability of conducting standard practices for material testing as determined by AASHTO, ASTM, or the Department

Qualified Technicians. Individuals who have successfully completed the requirements of the Indiana Department of Transportation Qualified Laboratory and Technician Program

Proficiency Test. Testing by the technician to demonstrate proficiency in sampling materials and conducting tests

Written Examination. The initial portion of the Qualified Technician Program required for acceptance sampling and testing procedures.

## **Qualified Laboratory and Technician Program Panel**

The State Materials Engineer will chair a Qualified Laboratory and Technician Program Panel which is responsible for the development of the program, the approval of the program and guidelines, the development of training criteria, the development of the written examination, the development of proficiency testing guidelines, the development of a database for each technician, and the de-qualification or other appropriate actions regarding laboratories or personnel. The panel will consist of the State Materials Engineer Materials Services Engineer, State Construction Engineer, a District Testing Engineer, and a District Construction Engineer.

## **Qualified Laboratory Program**

The Department Qualified Laboratory Program consists of maintaining AASHTO Accreditation of the Office of Materials Management Laboratory, the developing and maintaining laboratory inspections and laboratory sample exchanges with the District Testing laboratories and District Production laboratories, and the developing and maintaining laboratory inspections for laboratories meeting the requirements of the Certified Aggregate Producer Program, the Certified Hot Mix Asphalt Producer Program, the Certified Precast Concrete Producer Program, or the the Certified Precast Prestressed Concrete Producer Program.

The AASHTO Materials Reference Laboratory (AMRL) provides technical support and administrative coordination for the AASHTO Accreditation Program. AMRL provides laboratory assessment, quality system evaluations, and proficiency testing samples for laboratories testing soils, asphalt binders, emulsified asphalt, hot mix asphalt, paint, and aggregates. Similar services are offered by the Cement and Concrete Reference Laboratory (CCRL) for laboratories testing hydraulic cement, pozzolons, portland cement concrete, reinforcing steel, and masonry units.

The AASHTO Accreditation Program requires that all laboratories participate in the on-site inspection program. The Office of Materials Management is assessed by AMRL and CCRL on a frequency of approximately 24 months. The assessment includes an on-site inspection and a Quality System review. The assessors evaluate the apparatus and procedures used to conduct physical tests to determine if the laboratory Quality System is consistent with that specified by the Quality System Manual. At the completion of the inspection, the assessor summarizes the findings and notes any deficiencies regarding corrective action. The laboratory is required to provide AMRL or CCRL with satisfactory evidence that all deficiencies have been corrected within 90 days of the issuance of the final report.

The AASHTO Accreditation Program requires that all laboratories participate in the applicable proficiency sample proficiency program. The Office of Materials Management participates in all applicable sample proficiencies offered by AMRL and CCRL. When laboratory test results are beyond two standard deviations of the grand average values, the laboratory is required to determine the reason for the discrepancy and report the corrective action taken within 60 days of the issuance of the final report.

The Department on-site inspection program requires that an Office of Materials Management representative audit the District and Production laboratories annually. The laboratories are required to present all testing equipment to assess their dimensional and functional requirements. The laboratories are required to conduct all of the tests being done at that particular facility. The equipment and procedural presentations are evaluated and documented. When deficiencies are noted, a review of the deviation from the test method will be made to include a discussion of possible corrective actions. Each laboratory is required to maintain a Quality Control System manual and to document that all equipment has been calibrated and verification records are maintained.

The Materials Services Section will audit the Department laboratories for performance graded binder, emulsified asphalt, hot mix asphalt, soil, portland cement concrete, and aggregates. All documentation of the audits is retained in the Materials Services Section.

The Office of Materials Management will fabricate laboratory proficiency samples for distribution to the District and Production laboratories. The District and Production laboratories will be supplied with directives on testing procedures, data documentation, and any other required information for the proficiency samples. The Production laboratories are required to have technicians qualified under this Program conduct all laboratory sample proficiency testing. The Materials Services Section will analyze the results of the laboratory proficiency for program compliance. All laboratory proficiency sample program documentation will be retained by the Materials Services Section.

Industry laboratories which have been approved by the Department under the requirements of the Certified Aggregate Producer Program or the Certified Hot Mix Asphalt Producer Program are initially qualified to conduct sampling and testing for acceptance of materials. Continual evaluation of the quality conformance of the laboratories will be done by the Department during the annual Certified Aggregate or Certified Hot Mix Asphalt Plant audits. Any deficiencies noted during these reviews will be administered by the appropriate program and resolved within 10 days.

Industry laboratories which have been approved by the Department as Geotechnical Consultants are initially qualified to conduct sampling and testing for acceptance of B Borrow or structure backfill. Continual evaluation of the quality conformance of the laboratories is done by assessments and proficiency sample programs by AMRL. Deficiencies from the assessment of the laboratory test procedures or deficiencies of the proficiency samples are required to be corrected.

Industry laboratories which have been approved by the Department under the requirements of the Certified Precast Concrete Producer Program are initially qualified to conduct sampling and testing for acceptance of materials by the American Concrete Pipe Association (ACPA), the National Precast Concrete Association (NPCA) or Precast/Prestressed Concrete Institute (PCI) Certification Programs. Continual evaluation of the quality conformance of the laboratories is done by the ACPA or NPCA during the annual audits. Any deficiencies noted during these reviews is administered by the appropriate program and resolved within 30 days.

## **Acceptance Personnel**

The Qualified Technician Program is applicable to Department Construction, Department Testing, Contractor, Producer, Consultant, or Local Public Agency technicians. Representatives include Project Engineers, Project Supervisors, technicians, and seasonal employees that are involved in the acceptance process for any contract.

The Contractor, Producer, Local Public Agency, or Consultant is responsible for providing adequate training to their employees, coordinating with the Districts to schedule the written examinations, and notifying the respective District Testing Engineer when personnel need proficiency testing.

Certified Aggregate Technicians, and Certified Asphalt Technicians-are not required to take the written exam to become a Qualified Technician. Proficiency testing is required and will be evaluated by the Independent Assurance Program.

Industry representatives, other than Certified Technicians, who conduct sampling and testing used for acceptance of materials or products are required to complete the written examination and proficiency testing as described in the Qualified Technician Program.

## **Qualified Technician Program**

The Qualified Technician Program is maintained for aggregates, hot mix asphalt, portland cement concrete, soils, and special testing.

Technician qualification requires an initial written examination and subsequent proficiency testing at least once every three years. Acceptance Personnel are required to be qualified in each area designated by the requirement of their job duties. For Department employees, voluntary classroom training is provided prior to the written examinations.

The written examinations or proficiency testing will detail the applicable AASHTO, ASTM, or Indiana Test Method requirements and will include the procedures for the sampling, testing, frequencies, and documentation of test results.

Written examinations are provided to the Acceptance Personnel when requested. If a failure of the written examination occurs, a re-examination will be allowed; however, the exam may not be taken within 24 hours of the original examination. The Acceptance Personnel will be given the opportunity to review applicable test requirements prior to the re-examination.

If a failure of the re-examination occurs, the Department will forward the results to the appropriate District Testing Engineer or District Construction Engineer for subsequent actions in accordance with the Non-Conforming Examination requirements, stated hereafter. The individual will not be allowed to conduct contract acceptance sampling or testing for those specified procedures that were failed.

Written examinations are conducted as required for all Acceptance Personnel who have not been reviewed for proficiency within a three year period, new employees, or those individuals needing qualifications in additional testing areas. The date recorded to designate the beginning of the three year period for the written examination will be January 1<sup>st</sup> of the year that the individual passed the examination.

Proficiency testing will only be given after the Acceptance Personnel have passed the written examination. Proficiency testing and the evaluation of equipment applicable to either sampling or testing procedures is to be monitored through the Independent Assurance Program at least once every three years. A procedural checklist will be followed to ensure uniformity during the proficiency test, and the results will be documented. Acceptance Personnel are responsible for keeping their proficiency requirements current.

If a failure of the proficiency test occurs, a re-test will be given immediately after a review of the applicable test procedures.

If a failure of the re-test for proficiency occurs, the Department will forward the results to the appropriate District Testing Engineer or District Construction Engineer for subsequent actions in accordance with the Non-Conforming Proficiency requirements, stated hereafter. The individual will not be allowed to conduct contract acceptance sampling or testing for those specified procedures that were failed.

The District Testing Engineers and the District Construction Engineers are responsible for the administration of the written examinations and the applicable proficiency testing for all Acceptance Personnel. The Office of Materials Management is responsible for developing and maintaining a database system of all individuals who have successfully completed the written examinations and proficiency testing for each required specified sampling or testing procedure.

### **Non-Conforming Examinations or Proficiency**

If a Department employee fails the follow-up examination or proficiency, the individual will not be allowed to conduct sampling or testing used for contract acceptance.

If a Non-Department employee fails the follow-up examination or proficiency test, the individual will not be allowed to conduct sampling or testing procedures used for contract acceptance. Applicable training to the satisfaction of the Qualified Laboratory and Technician Program Panel will be demonstrated and subsequent passing the written examination and proficiency test will be required for the individual to become a Qualified Technician.

### **Unqualified Personnel Conducting Acceptance Sampling or Testing**

If a Department employee knowingly conducts acceptance sampling or testing and has not been qualified in accordance with the Qualified Laboratory and Technician Program, the individual may be subject to disciplinary actions as deemed appropriate by the Qualified Laboratory and Technician Program Panel and the Human Resources Division.

If a Non-Department employee knowingly conducts acceptance sampling or testing and has not been qualified in accordance with the Qualified Laboratory and Technician Program, the individual's employer and the Department Contract Administration Division will be notified.