

commenters recommended that the use of split samples be permitted for the verification sampling and testing program. The commenters are concerned about the potential problems that may arise with differences in testing results caused by sampling errors.

There are three sources of differences between two test results, differences in the material, differences in test procedures and differences in sampling procedures. Split samples will only address the differences in test procedures and will only provide assurance that the contractor is performing the tests properly. In a balanced system it is also necessary to assure that sampling of materials is performed properly. It is our intent that the verification sampling and testing program be used to independently validate the quality of the material. Using independent samples will insure that all sources of differences are measured. The FHWA recognizes the need to ensure that each contractor performs the tests correctly; that is the reason for extending laboratory and testing personnel qualification requirements and IA program requirements to the contractor if the contractor's test results are to be used in the acceptance decision. The FHWA expects the testing variability between the contractor and the State to be held to a minimum by requiring the contractor's testing program to be covered by an IA program and requiring the testing personnel and laboratories to be qualified. The FHWA has changed the definition of "verification sampling and testing" and § 637.207(a)(1)(ii)(B) to clarify the fact that the verification sampling and testing program is being used to validate the quality of the material.

Eight commenters objected to requiring the use of the F-test and t-test for verifying a contractor's test data. The commenters were concerned about the complexity of the F-test and t-test which would have to be used by field personnel and the lack of flexibility in allowing other comparison systems. The commenters requested that the regulation be revised to allow other types of comparison systems. The FHWA agrees with the concerns and has removed the requirement for a specific comparison procedure. Each State will have the latitude to develop its own verification system.

Three commenters—two State Highway Agencies and one local highway agency—objected to including contractors' testers in States' IA programs. The commenters are concerned over the additional resources

involved in extending the IA program to contractor testing.

If a contractor's test results are to be used in the acceptance decision, assurance must be provided that the contractor's testers and equipment remain capable of performing the tests properly. Some States are currently performing split sampling and testing on project sites to validate the contractor's test results. This split sampling and testing would meet the requirements for an IA program on contractor testing. This proposed requirement has been retained in the final rule.

Qualified Sampling and Testing Personnel

Four commenters specifically supported the concept of certifying testing personnel.

Two commenters wanted to change the term certified personnel to qualified personnel. The FHWA agrees with the comments since the goal of the FHWA is to have qualified personnel perform the testing. The term "certified" was deleted from the definition of qualified testing personnel.

Sixteen commenters expressed concern about the cost, specific requirements, and/or two-year implementation period for establishing qualification programs for testing personnel. To allow adequate time to develop qualification programs, we have extended the implementation time from two years to five years. If a State chooses to use a certification program as its qualification program, the FHWA is developing training material that can be modified for State use. The FHWA will also assist the States in adapting the material for their use.

Independent Assurance Program

Thirteen commenters objected to the proposal to remove the requirement that State highway agency (SHA) personnel perform IA testing. The States wanted to continue to perform IA testing as a means to maintain expertise in the materials sampling and testing area and maintain the credibility of their materials programs. Since materials sampling and testing are an essential part of determining the quality of the product that is obtained from the use of Federal-aid funds, the FHWA has an interest in maintaining the States' expertise and credibility. However, in cases where States are using contractor test results in acceptance decisions, the FHWA believes it is important that the States have the option of using consultants to perform IA testing. It is important to note that the final rule does not require a SHA to use consultants in

the IA program, but simply gives SHAs the option to do so. The FHWA has added § 637.205(b) which requires States to maintain an adequate, qualified staff with the capability of overseeing the entire quality assurance program and specifically requires the States to maintain a central laboratory. This requirement is consistent with 23 U.S.C. 302 which requires each State to maintain an adequate highway department.

Three commenters requested further clarification on the use of the system approach in performing an IA program. The intent of the system approach to the IA program is to concentrate on assuring that the testing personnel and equipment remain capable of performing the tests properly, regardless of the location or number of projects covered by the equipment and tester. The system approach will permit an SHA to fulfill the requirement for an IA program by implementing a schedule of activities to cover equipment operations and tester competence. The activities may include calibration checks, split samples, proficiency samples, and observations. The schedules and type of activity would be based on the test procedure. In the system approach, the frequency of IA may be independent of the number of tests performed or the quantity of material tested. It is envisioned that the system approach will be especially useful in cases where one tester performs testing for more than one project during a construction season. The previous requirement for IA entailed sampling and testing frequencies based on individual project production. In addition, a State may choose to use the information developed from the IA program in the qualification programs for testers and laboratories. One commenter asked if the NPRM would allow a State to use a hybrid approach, which would include some frequencies based on project quantities and frequencies based on the overall system. This rule as written would allow that approach. It should be noted that the rule does not require a State to use this approach.

One commenter wanted the requirements for the IA program to be less stringent. The requirements in the final rule for IA have been made less prescriptive than the current regulations and give a State more latitude in designing its IA system. The existing regulation requires State personnel to perform the IA sampling and testing. The final rule would allow: (1) The use of accredited consultant laboratories in executing an IA program, (2) a system approach instead of a project approach, (3) proficiency samples instead of split