



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

2300 East Devon Avenue  
Des Plaines, Illinois 60018

Policy and Procedures Memorandum-Airports Division

NUMBER : 5370.4  
DATE : October 1, 1990  
SUBJECT : Material Testing During Construction for Airport  
Development Projects Involving Federal Investment  
Funds.  
REFERENCES: AC 150/5370-10, Standards for Specifying Construction  
of Airports, dated February 17, 1989  
OIG Final Report No. R5-FA-9-129, Airport Construction  
Materials Conformance in FAA Great Lakes Region,  
August 7, 1989.

APPENDICES:

1. Appendix 1. Program Guidance Letter 90-2, March 29, 1990, revised per Program Guidance Letter 90-4, July 27, 1990, and amended by Great Lakes Region, Airport Division.
  2. Appendix 2. Background and basis for PPM.
  3. Appendix 3. Coordination and resolution of comments provided when this PPM was drafted. (Internal Use Only)
1. Background:

a. On August 7, 1989, the Office of Inspector General (OIG) submitted a report assessing the FAA's monitoring and control over the use of airport construction standards and compliance with contract pavement material and testing requirements. The overall objective of this audit was to determine if sponsor acceptance procedures, approved by the FAA, resulted in pavements being constructed in close conformance with approved designs. Three areas were identified in which potential improvement might be appropriate and are listed in Appendix 2. The FAA Great Lakes Region did not concur with the OIG's opinion that these areas were necessarily indicative of defective material, that reasonable assurances were lacking, or that inadequate visibility or control was present.

---

Distribution: AGL-600/601/610/620;602  
CHI-ADO; DET-ADO; MSP-ADO;  
BIS-AFO; State Aviation Directors  
(for information - thru ADO).

Originator: AGL-620

- b. Based on it's findings, the OIG made recommendations which are set forth in Appendix 2.
- c. Additional background material is provided via incorporation as Appendix 3 the resolution of comments provided during the formulation of the PPM.

2. Policy/Procedures. In response to the OIG Audit on Airport Construction Materials Conformance, FAA, on a national basis, agreed to require certain additional, procedural measures pursuant to sponsor certifications to ensure improved adherence to quality control.

a. Control Over Construction Contract Standards.

(1) The sponsor will be required to take necessary steps to ensure the use of FAA standards and acceptance testing procedures are understood and properly implemented by consultants, testing firms and contractors.

(2) Use of FAA standards and acceptance testing procedures will be emphasized at predesign conferences and sponsor-consultant seminars. Sponsor certification will identify (or include by reference) appropriate pay reduction, lot size, and testing provisions, consistent with FAA standards. The Sponsor will certify that the required test provisions have been included in contract specifications. Any exceptions must be approved by the Airports Engineer upon adequate justification.

Sponsors must develop and carry out a construction management plan for all grant agreements which contain paving work estimated in excess of \$250,000. This procedure is effective immediately.

(3) FAA project managers will accept the sponsor's certifications or, if the sponsor refuses to provide a certification, review the sponsor's contracts to assure inclusion of appropriate pay reduction, lot size, and testing provisions. Projects for which sponsors cannot provide certifications shall necessarily receive a lower priority with regard to ADO resource management.

(4) Prudent resource management does not require review of sponsor contracts, but promotes acceptance of certifications. Should any national evaluation determine that the certification acceptance program represents an unacceptable risk, we will reevaluate this policy.

October 1, 1990

PPM 5370.4

Note: The FAA does not employ "inspectors" to cover sponsor projects involving federal investment funds. Rather, FAA personnel resources are dedicated to a much higher level of oversight. FAA adequately addresses its funds stewardship role through an "audit" (with acceptable risk management) rather than a "hands-on" (or inspection) method.

b. Control Over Contract Compliance Relevant to the Sufficiency of Material Testing Requirements.

(1) The sponsor or his agent will be required to take necessary actions to ensure that during construction all required tests are accomplished and performed in accordance with contractual agreements.

(2) Upon project completion, the sponsor is required to identify and summarize the total amount and value of accepted material which was not fully tested in accordance with contractual agreements. At the time of final project evaluation, the ADO project manager will ask to see the test reports if he deems this necessary. Normally the sponsor's summary in the project report will be determined to be adequate.

(3) Reserved

(4) The sponsor or his agent is required to provide explanations or justifications for accepting material without fulfilling the contractual testing requirements in the final project closeout report. During the construction phase of a project, close coordination between the sponsor and the resident engineer will be required to assure the necessary approvals are issued. Decisions made and concurrences given should be well documented. At the time of final federal evaluation, the ADO projects manager may ask to see this documentation in addition to the final project closeout report.

Occasionally, FAA has concurred in the Sponsor's acceptance of material in a project involving federal investment which was not fully tested in accordance with contractual agreements. In these cases, it must be justified and documented (in summary) in the Sponsor's final project closeout report. The material must be noted in detail in sponsor records as fully tested, if alternative methods of acceptance have been established and approved.

(5) FAA projects managers may review for participation purposes final project closeout reports containing the sponsor-provided summaries of material which was not fully tested. This "evaluation" activity is intended to protect the government's interest and investment in the airport project.

Note: Project records are required to be maintained by the sponsor for 3 years after the project has been completed (49 CFR 18, section 18.42).

(6) FAA projects managers will identify any observed, unsatisfactory, sponsor supervision and inspection of material testing and may disallow federal funding participation in this work.

(7) FAA projects managers will document their findings and actions taken to assure compliance with the grant agreement via normal final project closeout. It is the responsibility of the sponsor to document material testing findings and actions taken, and to summarize these in the final project closeout report.

c. Control Over Contract Compliance Relevant to Out-of-Tolerance Test Results.

(1) The sponsor or his agent will monitor all projects and be available to resolve any problems as they develop to minimize the amount of out-of-tolerance material.

(2) The sponsor will identify and summarize the total amount and value of accepted out-of-tolerance material in the final project closeout report. FAA projects managers will emphasize this requirement for all future projects. The summary information will be required for review by the FAA projects managers at the time of the final evaluation and closeout.

(3) The sponsor will document explanations or justifications for accepting out-of-tolerance material, as well as any actions taken in response to these test results. The basis for accepting out-of-tolerance material will be justified by the sponsor's resident engineer and approved by the sponsor.

(4) FAA projects managers, when performing a project evaluation may:

(a) Review the reported summaries of out-of-tolerance pavement material. They may also review detailed records to verify out-of-tolerance materials that have been allowed by the sponsor or his agent.

(b) Identify and report to the sponsor any observed, unsatisfactory sponsor supervision and inspection of material testing which may require correction.

October 1, 1990

PPM 5370.4

(c) Require the sponsor to document FAA findings and sponsor follow-up actions taken to assure compliance with the grant agreement. It is the responsibility of the sponsor to document findings and actions with regard to the acceptability of materials and to report these to the FAA projects manager in the final project closeout report.

(5) FAA projects managers will advise airport sponsors that payment reduction provisions in pavement specifications are to be appropriately enforced. If the sponsor fails to apply reductions in payment, the FAA may never-the-less apply the penalties to the sponsor.

(6) Projects managers will continue to emphasize the above measures to grant recipients for paving projects in excess of \$250,000. The reporting of such measures is also required by program guidance letter 90-2 as modified by 90-4, as a special condition for grants which contain paving work estimated in excess of \$250,000. (See Appendix 1)

d. Spot Checks.

(Reserved)

  
W. Robert Billingsley  
Manager, Airports Division

Note: This PPM has been carefully examined pursuant to human and material resource management, and has been determined neutral or negative with respect to current resource commitments.

APPENDIX 1. PAVEMENT PROJECTS

The sponsor agrees to perform the following:

1. Furnish a construction management program to FAA prior to the start of construction which shall detail the measures and procedures to be used to comply with the quality control provisions of the construction contract, including, but not limited to, all quality control provisions and tests required by the Federal specifications. The program shall include as a minimum:

a. The name of the person representing the sponsor who has overall responsibility for contract administration for the project and the authority to take necessary actions to comply with the contract.

b. Names of testing laboratories and consulting engineer firms with quality control responsibilities on the project, together with a description of the services to be provided.

c. Procedures for determining that testing laboratories meet the requirements of the American Society of Testing and Materials standards on laboratory evaluation referenced in the contract specifications (D3666, C1077).

In the event insufficient certified laboratories are available within any area the sponsor must provide documentation that the selected laboratory is in this particular case a reasonable alternative.

Note: The regions goal is to increase the number of laboratories that meet the ASTM requirements and to develop a training seminar for all testing firms that do airport testing in the Region by May 1, 1992.

d. Qualifications of engineering supervision and construction inspection personnel.

e. A listing of all tests required by the contract specifications, including the type and frequency of tests to be taken, the method of sampling, the applicable test standard, and the acceptance criteria or tolerances permitted for each type of test.

f. Procedures for ensuring that the tests are taken in accordance with the program, that they are documented daily, that the proper corrective actions, where necessary, are undertaken.

October 1, 1990

2. Submit at completion of the project, a final test and quality control summary documenting the results of all tests performed, highlighting those tests that failed or did not meet the applicable test standard. The summary shall include the pay reductions applied and reasons for accepting any out-of-tolerance material.

Note: Professional and administrative costs for preparation of final project closeout reports are an eligible cost of airport development.

APPENDIX 2. BACKGROUND AND BASIS FOR PPM 5370.4

On August 7, 1989, the Office of Inspector General (OIG) submitted a report assessing the FAA's monitoring and control over the use of airport construction standards and compliance with contract pavement material and testing requirements. The overall objective of this audit was to determine if sponsor acceptance procedures, approved by the FAA, resulted in pavements being constructed in close conformance with approved designs. The following three problem areas were identified:

a. All six of the pavement construction contracts established minimum material or testing standards which were allegedly less stringent than the quality control standards established in FAA's advisory circulars. The OIG attributed this to the FAA's inadequate monitoring and control over the contract review and/or certification process. In the OIG's opinion, these contract omissions and ambiguities furnished reasonable assurances that the pavement would meet acceptable quality level standards.

b. About \$4.1 million (48.8 percent) of the pavement material reviewed was not deemed fully tested in accordance with the contractual agreements. Of this amount, \$2.9 million was unresolved because sponsors failed to perform concrete thickness tests, with which pay reduction provisions were associated. This was attributed by the OIG to the FAA's inadequate visibility and control over the pavement material, which was allegedly often accepted without being fully tested. Accordingly, the OIG further believed the FAA did not have proper assurance that the associated pavement material conformed with the contract specifications and minimum quality levels needed to achieve a full service life.

c. At least \$890,000 (10.6 percent) of the pavement material reviewed was reported not to comply with one or more of the contractual standards, i.e., out-of-tolerance material. The use of out-of-tolerance material was attributed by the OIG to the FAA's inadequate visibility and control over the pavement material. Accordingly, the OIG believed the FAA did not have proper assurance that the accepted out-of-tolerance material would not result in premature failures, reductions in expected service life, and/or increased maintenance costs.

Note: The FAA Great Lakes Region did not concur with the OIG's opinion in any of the above cases, a thru c; i.e., that the deficiencies are necessarily indicative of defective material, that reasonable assurances were lacking, or that inadequate visibility or control was present.

October 1, 1990

Based on its findings, the OIG made the following recommendations:

a. Control Over Construction Contract Standards

(1) Require that the sponsors (i) provide contract certifications that specifically identify appropriate pay reduction, lot size, and testing provisions, which comply with FAA's published standards, or (ii) provide a written explanation as to why such provisions were not used.

(2) Require that the FAA engineers review the sponsors' certifications or contracts to assure that these documents have specifically addressed appropriate pay reduction, lot size, and testing provisions.

(3) Require FAA engineers, when accepting certifications, to review the contracts to verify they are in accordance with FAA standards.

b. Control Over Material Testing Requirements

(1) Require each sponsor to identify and summarize the total amount and value of accepted material which was not fully tested in accordance with contractual agreements.

(2) Require each sponsor to provide explanations or justifications for accepting material without fulfilling the contractual testing requirements.

(3) Require FAA inspectors, when performing an inspection, to (i) review the reported summaries of pavement material which was not fully tested, (ii) identify and report any unsatisfactory sponsor supervision and inspection of material testing, and (iii) document their findings and actions taken (on the inspection report) to assure that material testing is performed in accordance with contractual standards.

(4) Require sponsors to complete thickness acceptance tests for the \$2.9 million in untested concrete. Where tests are completed, apply contract pay reductions for failed thickness tests, if any. If tests are not completed, recover the federal share of unresolved costs. (This item was handled separately).

c. Control Over Out-of-Tolerance Test Results

(1) Require each sponsor to identify and summarize the total amount and value of accepted out-of-tolerance material.

(2) Require each sponsor to provide explanations or justifications for accepting out-of-tolerance material, as well as any actions taken in response to these test results.

(3) Require FAA inspectors, when performing an inspection, to (i) review the reported summaries of out-of-tolerance pavement material, (ii) identify and report any unsatisfactory sponsor supervision and inspection of material testing, and (iii) document their findings and actions taken (on the inspection report) to assure that installed material complies with contractual standards.

(4) Advise the sponsors that when computing Federal-aid participation, the total eligible project cost should be reduced by the amount of pay reductions that would have resulted from an enforcement of the contract specifications.

(5) Recover the federal share of \$37,500 for pay reductions that were warranted but not imposed (asphalt density).

Note: The OIG agreed to drop this item based on our documentation.