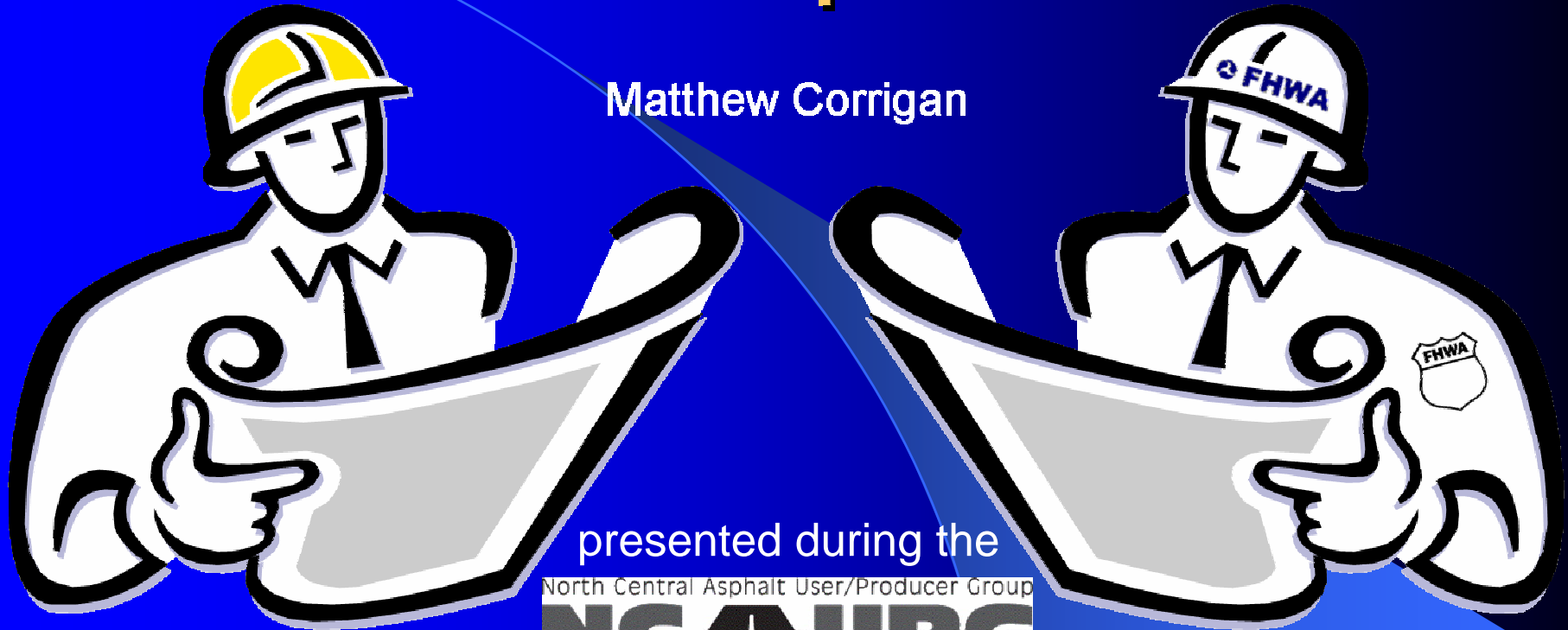


# FHWA Quality Assurance Stewardship Reviews

Matthew Corrigan



presented during the  
North Central Asphalt User/Producer Group



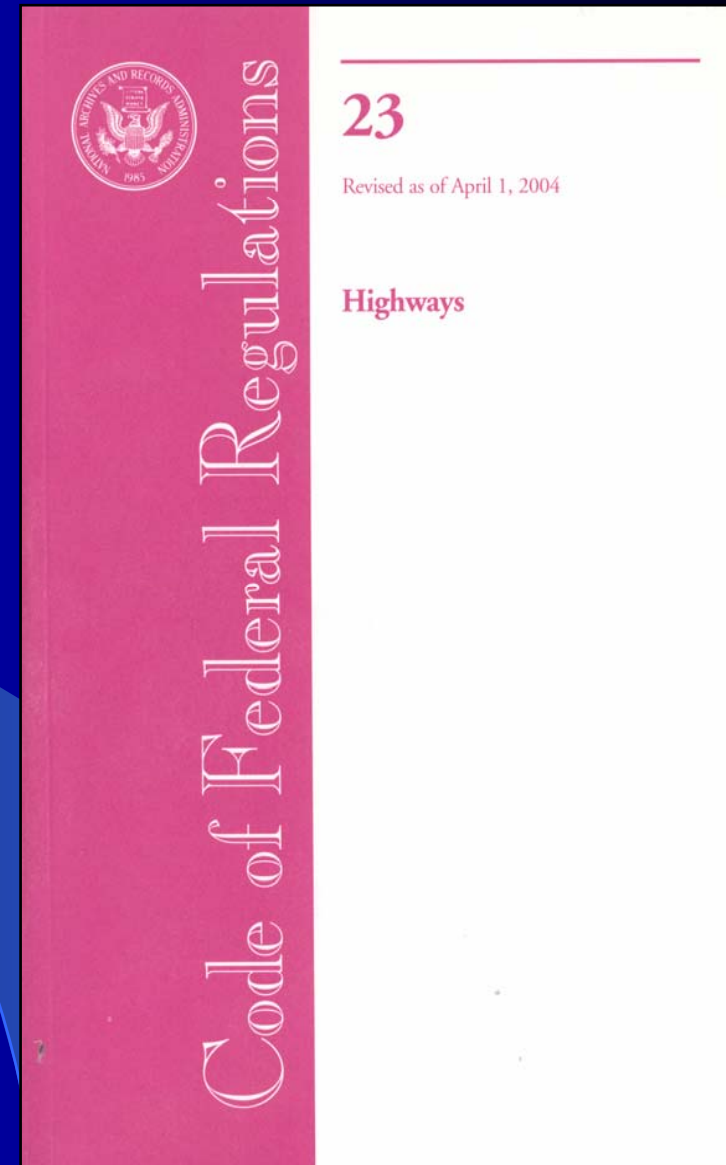
2006 Technical Workshop  
and Conference

# Quality Assurance Stewardship Reviews

## Background

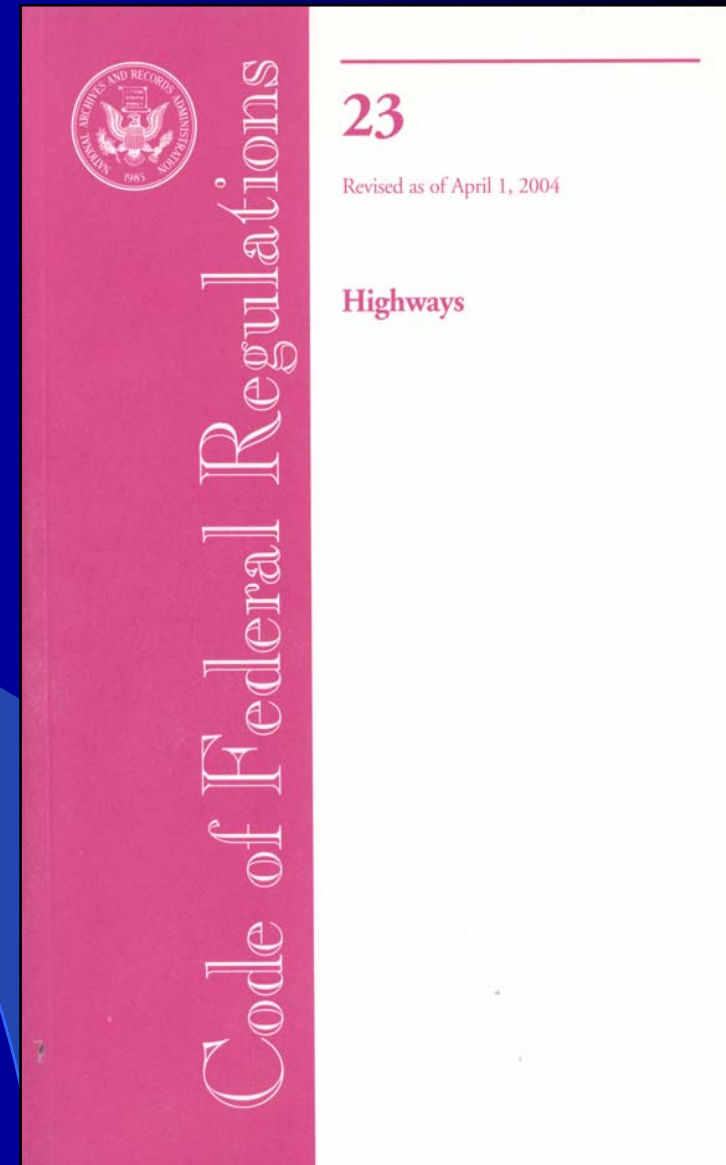
Title 23 Code of  
Federal Regulations  
Part 637  
(23 CFR 637)

June 29, 1995



# Quality Assurance Stewardship Reviews

- Approved QA program
- Use of Consultant labs
- System approach to IA
- State central lab
  - AASHTO accreditation
- All personnel and labs must be qualified
- Contractor's test results for acceptance

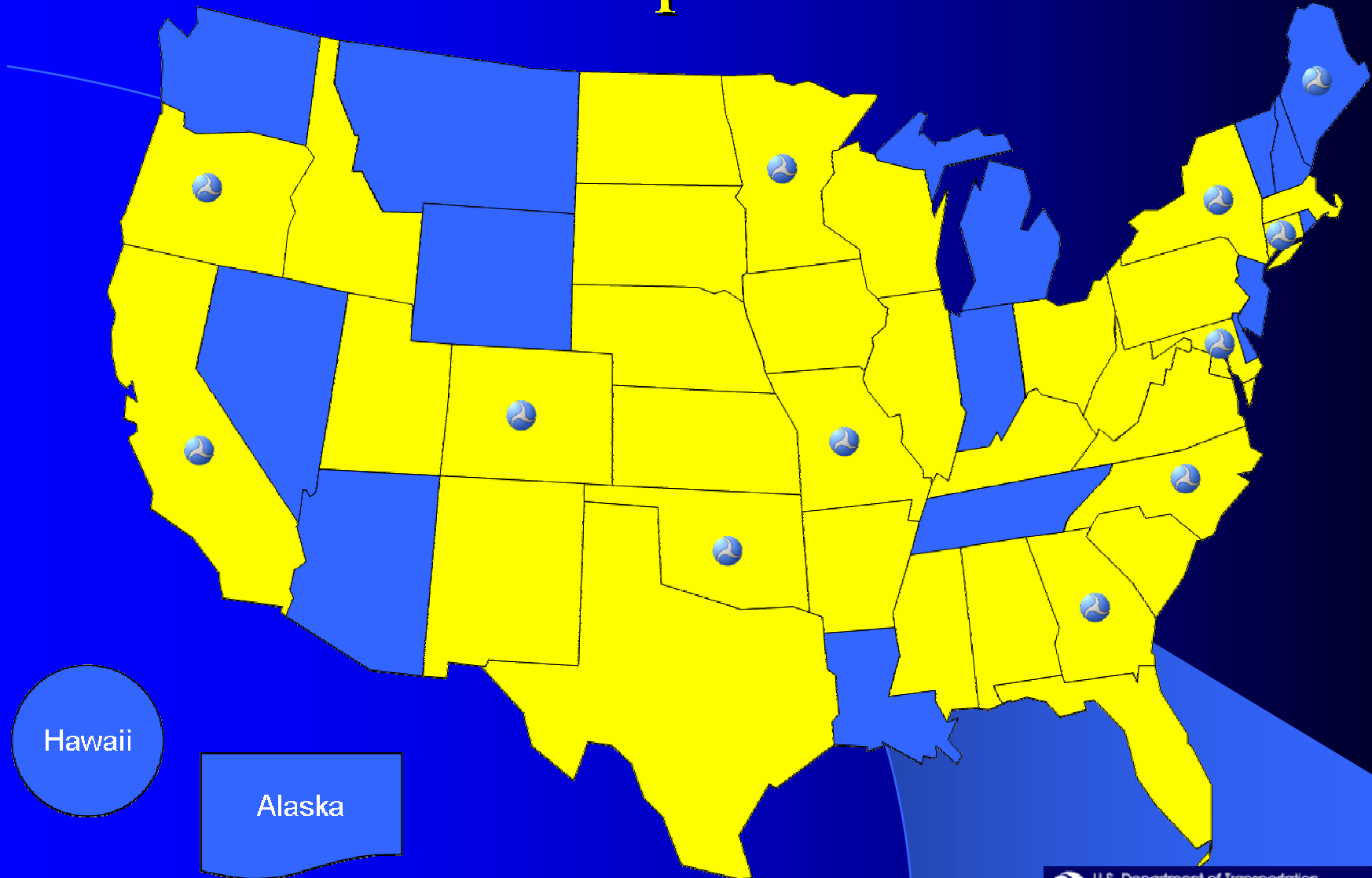


# Quality Assurance Stewardship Reviews

## States

- FY 2003  
Maine, Missouri, Colorado, and Oklahoma
- FY 2004  
California, Georgia, North Carolina, and New York
- FY 2005  
Maryland, Oregon, Minnesota, and Connecticut
- FY 2006 and beyond, States to be determined

# 33 States using Contractor Test Results in the Acceptance Decision



# Quality Assurance Stewardship Reviews

## Scope

- Interviews

DOT Headquarters, Region/District,  
and Project Field Offices

# Quality Assurance Stewardship Reviews

## Scope

- Quality Assurance Procedures Assessment Guidelines:

[www.fhwa.dot.gov/pavement/  
materials/qareview.cfm](http://www.fhwa.dot.gov/pavement/materials/qareview.cfm)

# Quality Assurance Stewardship Reviews

## Scope

- Interviews
  - DOT Headquarters, Region/District, and Project Field Offices
- Review
  - DOT implementation strategies, policy and procedures, and office records
- Visit
  - Construction projects to assess field procedures and practices



# Quality Assurance Stewardship Reviews

## Results Reported

- Identification
  - Compliance with Regulations and Best Practices
- Recommendations
  - Areas for Improvement
- Concerns
  - Observations from interviews

# Quality Assurance Stewardship Reviews

## Results Reported

- Quality Assurance Stewardship Review Summary Report for Fiscal Years 2003 and 2004:

[www.fhwa.dot.gov/pavement/stewardship.cfm](http://www.fhwa.dot.gov/pavement/stewardship.cfm)

# Quality Assurance Stewardship Reviews

## Positive Findings

- Technician and Laboratory Qualifications
- Electronic Materials Management Systems
- Sample Security Control System
- Joint biannual reviews by DOT and FHWA Division Office
- Internal materials reference sample programs for qualification
- Participation in, and use of NTPEP

# Quality Assurance Stewardship Reviews

## Positive Findings

- Monthly or quarterly meetings with District or Regional engineers to discuss issues
- Multiple layers of materials review

# Quality Assurance Stewardship Reviews

## Opportunities for Improvement

Need to strengthen the validation procedures of Contractor's results used for acceptance

- no independent samples

**Highest Concern Identified  
during the  
QA Stewardship Reviews**

# TECHNICAL ADVISORY

## Independent Samples

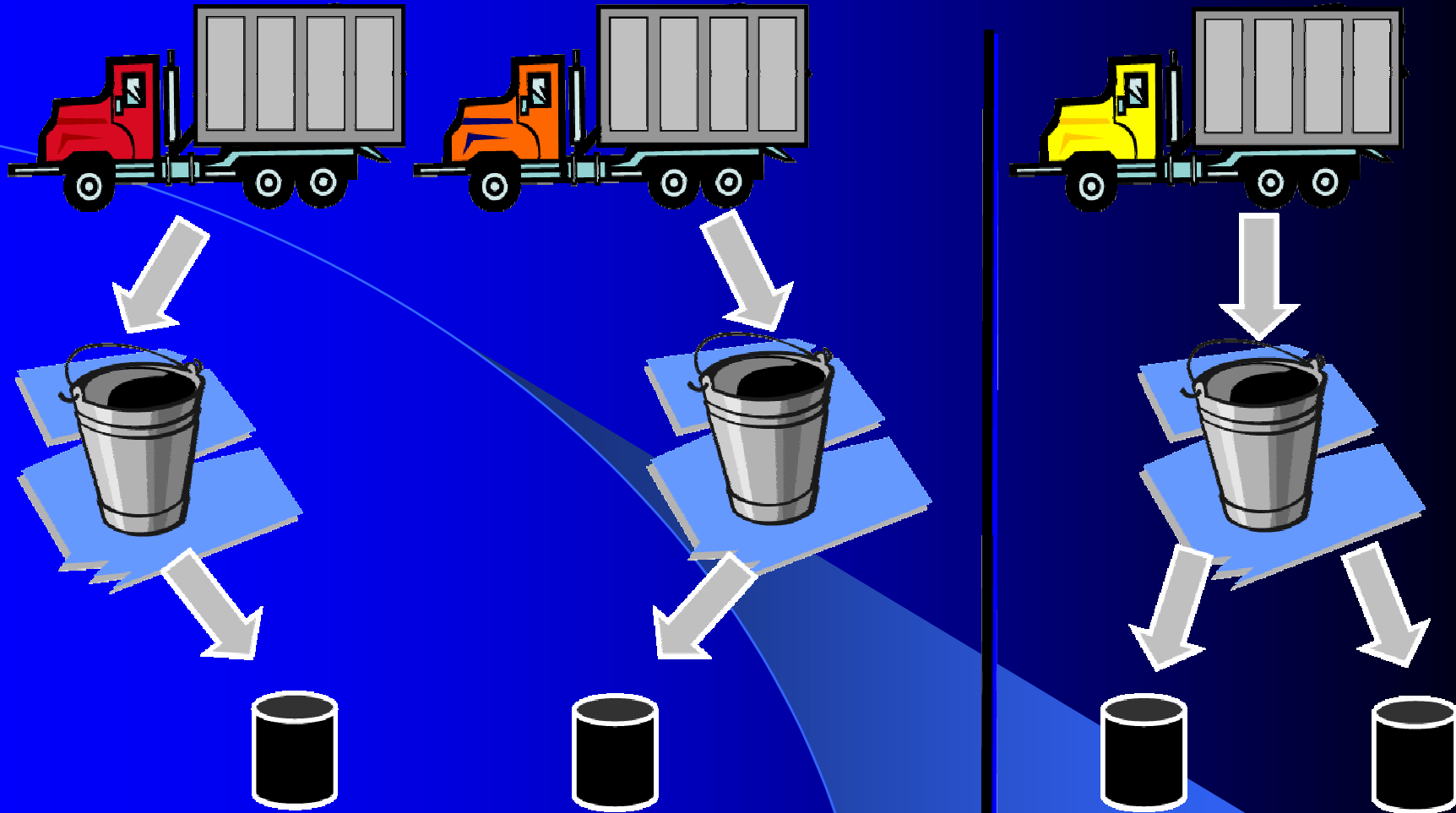
23CFR637B Sec. 637.207 QA Program



Contractor sampling and test results can be used as part of the acceptance decision provided:

(a)(1)(ii)(B) ... they are **validated** by verification sampling and testing ... verification testing shall be performed on samples taken independently of the contractor samples

# Quality Assurance Stewardship Reviews



$$\sigma^2_{material} + \sigma^2_{process} + \sigma^2_{sampling} + \sigma^2_{testing}$$

$$\sigma^2_{testing}$$

# Quality Assurance Stewardship Reviews

## Opportunities for Improvement

Need to strengthen the validation procedures of Contractor's results used for acceptance

- no independent samples
- Verification testing by Contractors



# TECHNICAL ADVISORY

## Independent Samples



23CFR637B Sec. 637.205 Policy

(d) The **verification sampling and testing** are to be performed by qualified testing personnel employed by the State or its designated agent, excluding the contractor and vendor.

# TECHNICAL ADVISORY

## Independent Samples

When is it possible to allow some limited contractor involvement in taking independent verification samples for the State?

- Labor Regulations
- Hazardous Conditions
- Liability Issues



# TECHNICAL ADVISORY

## Independent Samples

When is it possible to allow some limited contractor involvement in taking independent verification samples for the State?

- Labor Regulations

- Hazardous Conditions

- Liability Issues

**EXCEPTION  
NOT THE RULE**



# Quality Assurance Stewardship Reviews

## Opportunities for Improvement

Need to strengthen the validation procedures of Contractor's results used for acceptance

- no independent samples
- Verification testing by Contractors
- no statistical comparison
  - number of samples for comparison
  - increase frequency (non-comparison)
- no defined time frame for comparison

# Quality Assurance Stewardship Reviews

## Opportunities for Improvement

- Control of Contractor supplied data
  - source documentation
- Control of random sampling location
- Retest provisions
- Dispute resolution
- Multiple sample locations and tests

# Quality Assurance Stewardship Reviews

## Opportunities for Improvement

- Independent Assurance
  - tolerances
  - not using split samples
  - used for “Specification Compliance”
  - incomplete program
    - include all technicians and tests

# TECHNICAL ADVISORY T 6120.3

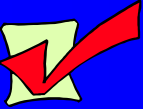
Use of Contractor Test Results in the Acceptance Decision, Recommended Quality Measures, and Identification of Contractor/Department Risks

[www.fhwa.dot.gov/pavement/ta.cfm](http://www.fhwa.dot.gov/pavement/ta.cfm)

The screenshot shows a Microsoft Internet Explorer browser window. The title bar reads "Technical Advisory T 6120.3 - FHWA - Microsoft Internet Explorer". The address bar contains the URL "http://www.fhwa.dot.gov/legsregs/directives/techadv/t61203.htm". The page content includes the FHWA logo and name, the title "Technical Advisory", the subject "Use of Contractor Test Results in the Acceptance Decision, Recommended Quality Measures, and the Identification of Contractor/Department Risks", and a table with classification code, date, and office of primary interest.

Classification Code	Date	Office of Primary Interest
T 6120.3	August 9, 2004	HIPT-10

# Quality Assurance Stewardship Reviews



## FHWA-RD-02-095 “Optimal Procedures for Quality Assurance Specifications”

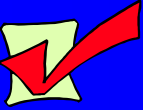
(Burati, Weed,  
Hughes, Hill)

[http://www.tfhrc.gov/  
pavement/pccp/pubs/02095/](http://www.tfhrc.gov/pavement/pccp/pubs/02095/)





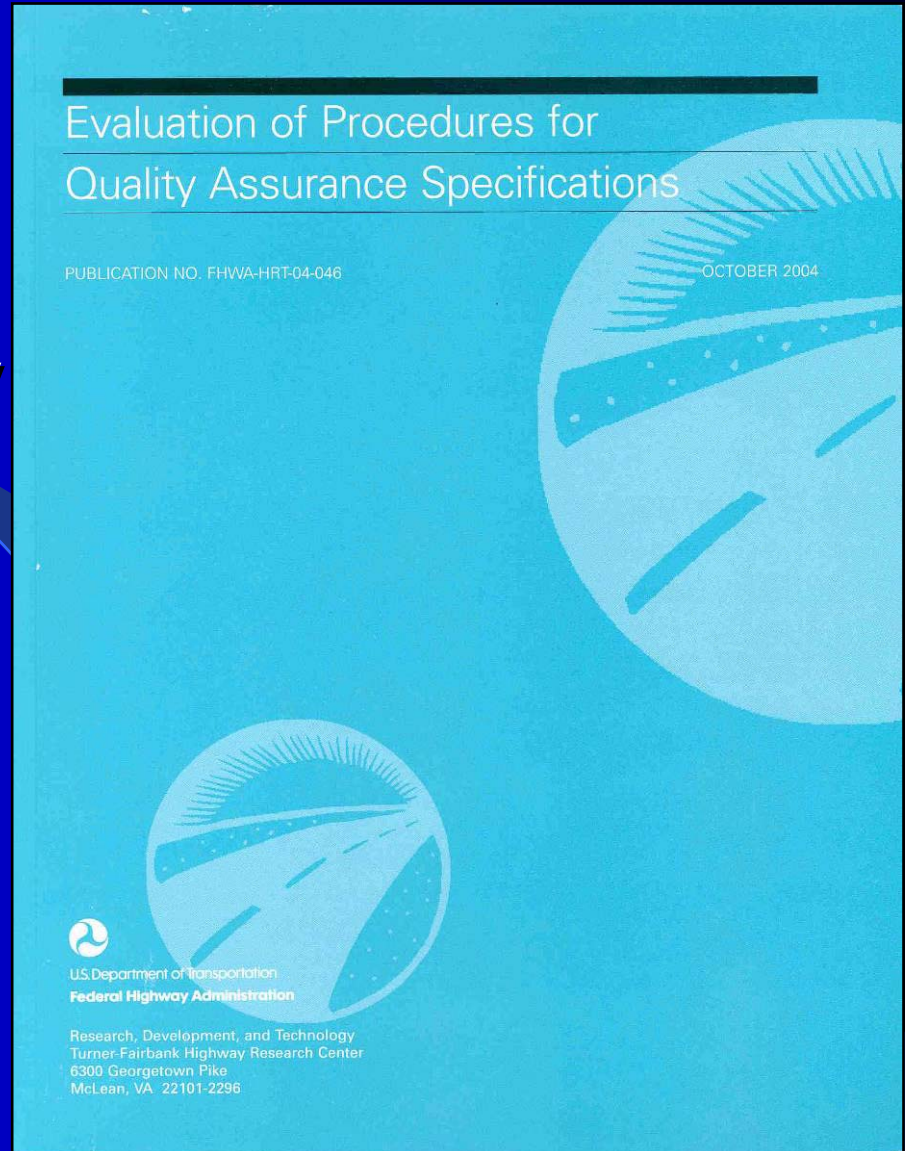
# Quality Assurance Stewardship Reviews



FHWA-HRT-04-046

“Evaluation of  
Procedures for Quality  
Assurance  
Specifications”

(Burati, Weed,  
Hughes, Hill)



# Quality Assurance Stewardship Reviews

## Other

- NHI Course 134042: Materials Control and Acceptance - Quality Assurance
- FHWA QA Workshops:  
Basic PWL, and  
PWL Specifications: A Risk Analysis Approach
- Revisions to the AASHTO Standard Recommended Practice R 9-05 “Acceptance Sampling Plans for Highway Construction”

# Quality Assurance Stewardship Reviews

## Future

- FHWA Risk Analysis software and updated PWL Specifications: A Risk Analysis Approach
- QA Specification Development Course
  - 5 day National Highway Institute course
- QA Risk Analysis software (Clemson contract)
  - Contractor/Production Oriented
- NCHRP Project 10-58(02) “Using Contractor Performed Tests in Quality Assurance”

# Quality Assurance Stewardship Reviews

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