Assuring Performance and Limiting Risk

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22 States Reviewed as part of QA Stewardship Reviews
Use of Contractor’s Test Results …

**Needed Improvements**

Sampling and testing provisions need to be stronger and require more emphasis.

**Largest Area of Concern**

Identified during the QA Stewardship Reviews
Use of Contractor’s Test Results ...

Needed Improvements

- Need to strengthen the validation procedures of Contractor’s results used for acceptance
- no independent samples

Highest Frequency of Regulatory Non-Compliance Identified during the QA Stewardship Reviews
Quality Assurance Program
FHWA Requirements

- Acceptance Program
  - State’s Verification Testing
  - Inspection
  - May use Contractor test results
  - Dispute resolution

- Qualified Technicians

- Accredited / Qualified Labs

- Independent Assurance Program

- Materials Certification
Resources

• NHI Course 134042: Materials Control and Acceptance - Quality Assurance
• FHWA Basic PWL Workshop
• SPECRIISK software (SPRING 2008)
• NHI Course 134059: Quality Assurance Specification Development and Validation Course (end 2008)
• 2003-2007 Summary Report
• www.fhwa.dot.gov/pavement/materials/stewardreview2006.cfm
Evolution...

QA Specs

Performance Specs

Design Build
Warrant Maintain
Intelligent Compaction

GPS antenna

GPS reference station
What is intelligent compaction?

• Automatic adjustable compaction equipment

• Selection of the most suitable equipment
GPS / positioning with reference station
At the mix plant are there other processes that can be part of a QA program?
In line viscometer for verification of binder
No more dials and knobs in the modern plant.
Computer recordation
QA of the Future

• The QA will all be tied to Internet.
  – Direct down load of info to the owner.
  – Posting of data immediately to all parties.
  – Faster review and resolution of discrepancies.
Where We Are Going ... Long Term

• Domestic Scan of other industries
• Move toward Quality Management Systems by all contractors and suppliers
  – Beyond ISO 9000 – sector specific requirement
    • Aerospace – AS9100
    • Automotive – ISO/TS16949
• Quality Based Selection and Procurement
• Design Build Warrant Maintain
Design Build Warrant Maintain
- The Final QA?

• Long Term Warranty
  – Performance based contract
  – Guarantees product integrity
  – Contractor responsible for repair of defects or replacement

• Warranty Period
  – Pre specified for repair defects

• Present Warranty workshops to states.
... and beyond!

- Cannot continue on same path of regulate and enforce
- Cannot continue to police contractors trying to catch them in the act
  - System needed to match contractor’s priorities in-line with agency’s
  - Quality and long term performance
Change in Producer Prices for Construction Segments

Change in Producer Prices for Construction Segments, 2003 - 2008 (December 2003 = 100)

Source: BLS (CPI, PPI)
Change in Producer Price Indexes (PPI) for Highway Inputs

Change in PPIs for Selected Highway Inputs, 2003 - 2008
(December 2003 = 100)

- #2 diesel fuel: 329%
- Asphalt paving mixtures & blocks: 82%
- Concrete products: 36%
- Consumer price index (CPI-U): 19%

Source: BLS (CPI, PPI)
Change in Producer Price Indexes (PPI) for Asphalt

Change in Producer Price Index for Asphalt Products, 2003 - 2008
(December 2003 = 100)

- Asphalt (at refinery): (222%)
- Prep. asphalt & tar roofing & siding prod: (45%)
- Asphalt paving mixtures & blocks: (82%)
- Consumer price index: (19%)

Source: BLS (CPI, PPI)
Light-Heavy Crude Prices

- WTI
- MAYA
- BOW
- WTI-BOW
Production of Butadiene

- Butadiene is a by product of the production of Ethylene.
- Ethylene is used to produce plastic rap packaging.
- Ethylene is produced by cracking either naphtha or (propane, ethane, butane)
- Naphtha produces butadiene
- Propane, ethane, butane do not.
What’s Changed

- Structural change - natural gas producers installed facilities to separate ethane
  - Ethane higher value than natural gas
- Ethane prices didn’t increase with the crude oil run-up
- Economic incentive to run more ethane feed
Thank You

Questions