Review of Steel Fabrication QC/QA Practices
Objectives

- Compliance with Federal Regulations
- NYSDOT Guidelines
Federal Regulations

- 23 CFR 637
  - Strong QA program
  - Qualified personnel
  - QC by contractor, QA by owner
NYSDOT Guidelines

- Local Projects Manual
- NYSDOT Steel Construction Manual (SCM)
Definitions

- Quality Control (QC)
- Quality Assurance (QA)
- Steel Fabricator
- Fracture Critical Members (FCM)
Definitions

- Quality Control (QC)
  - Monitor, Assess and Adjust
  - Ensure Quality of Final Product
Definitions

- Quality Control (QC)
  - Material Testing
  - Inspection Activities
  - Corrective Action
Definitions

• Quality Assurance (QA)
  – Agency Acceptance
  – Compliance with Specifications
Definitions

- Quality Assurance (QA)
  - Verification Sampling
  - Testing
  - Inspection
Definitions

- Quality Assurance
  - By Owner
- Quality Control
  - By Contractor
Definitions

• Fracture Critical Members/Bridge
  – Steel
  – Tension
  – Non-Redundant
Fracture Critical
Fracture Critical
Process

- Meetings with NYSDOT Metals Engineering Unit
- Interviews with Local Agencies and Consultants
- Interviews with Steel Fabricators
Criteria

- Steel Bridge Replacement or Rehabilitation Projects
- Construction Completed
- Local Federal-Aid Projects
Findings

- County A
  - Bridge Replacement Project
  - Fracture Critical Truss
  - Project Completed in 2007
Findings

• County B
  - Bridge Replacement Project
  - Steel Multi-Girder rolled beams
  - Out-of-State Fabricator
County A

• Reviewed County Project Files
• Interviewed County Project Manager
• Section 9 of SCM
“… All inspections required by the SCM shall be performed by a testing agency retained by the manufacturer.”
County A

- Project files
- ASTM testing requirements
County B

- Exhibited a high level of expertise
  - Contracts with a testing agency
  - Project files
  - Knowledge of the SCM
  - QA fulfilled State and Federal Requirements
Steel Fabricator Interviews

- Locals exhibit an inconsistent level of QA
- Self-Certification
- Plant Certification
Findings

• Inconsistent level of QA
• Conflict of Interest
• SCM clarification
Recommendations

- Clarify SCM
- Construction Management Plan
  - QA is owners responsibility
- State assistance with Fracture Critical bridges
Recommendations

- Plant and inspector certifications
- SCM checklist
- Training