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6.5.1 Introduction

Quality in the inspection and the resulting documentation is an important aspect that must be considered to ensure the safety of the traveling public in tunnels. The NTIS definitions for QC and QA are as follows:

Quality control (QC). The term "quality control (QC)" means the procedures that are intended to maintain the quality of a tunnel inspection and load rating at or above a specified level.

Quality assurance (QA). The term "quality assurance (QA)" means the use of sampling and other measures to ensure the adequacy of quality control procedures in order to verify or measure the quality of the entire tunnel inspection and load rating program.

Both QC and QA must be performed to ensure that the inspections conducted, and deliverables produced meet the tunnel owner's quality requirements, while ultimately ensuring the public's safety.

6.5.2 Quality Control

Consultants or local inspectors performing inspections on highway tunnels in Wisconsin are required to submit a quality control plan to the RPM for review.

The responsibilities include but are not limited to the review of the inspection reports and review of the inspection methods.

At least one inspection will be reviewed by a qualified PM (SPM, ASPM, or RPM) each cycle. All tunnels in the inventory will have an inspection reviewed at least once every 10-years.

The PM review of inspection reports will consist of the following:

1. Overall review of the inspection report to ensure that the report format per Part 6 Chapter 3 has been used, that the correct tunnel is identified and that all required information per the NTIS and Part 6 of the WisDOT Structures Inspection Manual has been entered.
2. Review that all information has been correctly entered in accordance with the SNTI and this manual. This review will include but not be limited to a check that proper coding conventions, format, significant digits and correct units have been used.
3. Check that the overall quantity of condition states is consistent with the condition states of the individual element deficiencies.
4. Check that there is adequate documentation for elements that have deficiencies in condition states 2, 3 & 4.



5. Check that all sketches, charts and/or photographs have been properly cross referenced in the inspection report.
6. Check that there is consistency of information between the current inspection report and previous inspection reports and/or rating report, if applicable.
7. Review functional system testing logs, as necessary.
8. Check that proper documentation was incorporated into the inspection report for any changes that may have occurred from the previous inspection report.
9. Check that inspection procedures were appropriate and were utilized by the inspection team
10. Review maintenance recommendations
11. Review of all items after data entry to check that they have been properly and correctly entered.
12. For every Initial Inspection, a check of the inventory data against the construction plans to ensure that the data is consistent.
13. For every Initial Inspection, a set of inventory photos has been taken and included in the report and saved in the Tunnel Inventory Database.
14. Load ratings, if applicable, will be reviewed by LRE

6.5.3 Quality Assurance

The review will include checking that the inspection data complies with the Federal and WISDOT requirements.

The QA review is responsible for ensuring that the defined quality control procedures are enforced throughout the state. A review includes all aspects of functions to ensure adherence to Federal and State inspection criteria, laws, codes, standards, and regulatory requirements.

The SPM, ASPM, and RPM are responsible for performing quality assurance reviews for NTIS tunnels. The QA review will be performed one of the PM's who was not part of the inspection team.

At the direction of the SPM, one of the PM's will field review at least one NTIS inspection report each inspection cycle, checking for the accuracy of element condition ratings and documentation. This review will be documented on the Structures Inspection Quality Assurance Form (DT2003).

The tunnel-specific inspection procedures and functional system testing procedures will also be reviewed for accuracy and to what level the TL followed the procedures. Also, the QA should determine if functional system tests are being adequately documented.

All tunnels in the inventory are required to be reviewed at least once in a 10-year period.



6.5.4 Inspector Disqualification/Requalification Procedures

Inspectors that fail to uphold the requirements for a quality inspector as established by WisDOT may be subject to the disqualification/requalification process.

Procedures are discussed in Part 1 Chapter 2 of the SIM.