



Internal Review Summary

Why QICO Performed This Review:

- This internal review is intended to provide Metro senior management with an assessment of the state of the Tunnel Ventilation System and promote the actions needed to address any concerns.
- QICO is independent from the functions it oversees, authorized by the General Manager to conduct objective reviews with unrestricted access to all functions, records, assets and employees under its purview.

QICO's Methodology:

- Developed relevant review activities by identifying and assessing risks to quality of work, compliance with standards, records management, and safety.
- Reviewed maintenance documentation, observed maintenance and inspection work in-progress, and interviewed key personnel.
- Review findings and required actions are rated based on severity of risk, which ranges on a scale from "Insignificant" to "High."

Note: An itemized Corrective Action Plan (CAP) is developed for each required action to achieve effective and measurable resolution of identified concerns. To check the status of CAP implementation go to www.wmata.com/initiatives/transparency/.

June 2017

Metrorail Tunnel Ventilation Inspection

QICO's Review Results:

Improved Communication Between Asset Owners and Maintainers Can Produce More Efficient System Results

QICO's internal review identified and noted several Wins (What Worked Well) and Areas for Improvement requiring corrective actions:

- ✓ Fans and dampers at reviewed sites functioned as intended.
- ✓ Excellent housekeeping at reviewed sites.
- ✓ Preventive maintenance was properly scheduled
- Ineffective use of existing policies and processes to correct design and configuration issues with tunnel ventilation system components.
- Areas adjacent to PLNT workspaces were blocked by equipment and debris.
- Supervisor training should be updated to emphasize quality control responsibilities.
- The governing maintenance documents are not complete/approved.
- Lack of coordination between maintenance and engineering functions in maintenance documentation.
- Modification of maintenance records.
- Concerns with the quality of maintenance documentation.
- Underutilization of technology resources in maintenance documentation.
- Informal Lock Out - Tag Out (LOTO) procedures.

Required Actions:

- **QICO-TVS-17-01:** Establish clear policies for the storage and removal of equipment in work areas, incorporating processes for interdepartmental coordination required to complete maintenance activities. *(Risk Rating: Moderate)*
- **QICO-TVS-17-02:** Establish clear definitions of training requirements for maintenance and supervisory positions, including differences in roles and responsibilities and quality control measures. *(Risk Rating: Elevated)*
- **QICO-TVS-17-03:** Complete, update, and maintain governing maintenance documents to ensure appropriate engineering controls of maintenance activities. *(Risk Rating: High)*
- **QICO-TVS-17-04:** Perform an investigation into the generation of maintenance documentation, to include the items identified by QICO. This investigation must be completed by an appropriate authority not directly responsible for completing the work being investigated. *(Risk Rating: High)*
- **QICO-TVS-17-05:** Establish document control procedures to standardize the capture and storage of maintenance documentation. *(Risk Rating: Elevated)*