

Who Determines a Quality Plastic Pipe Fusion and How is it Done?

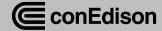


Agenda

- Fusion Quality Defense Layers at installation
- Overall QA/QC Fusion Quality Defense Layers
- Future State

Con Ed Pipe joining Defense Layers at installation

- 3 layers of defense to ensuring a quality joint
 - First is the mechanic who make the joint
 - The fully qualified mechanic is the first and most important part of process
 - Expected to strictly follow all joining procedures and then they perform a visual inspection
 - Second is our independent second level inspection
 - 100% of fuses are reviewed by a non crew based inspector who is qualified in visual inspection
 - Third is the QA/QC group checks
 - ~5%(5000k) fuses are inspected by the QC group. The majority of these inspections are a review of the entire process of fusing rather then just a visual inspection. All inspectors are fully fusion qualified



Overall Fusion Quality Layers

- Plastic Fusion, Second Inspections: 100% of all newly installed plastic fuses are inspected by independent non crew based inspectors
- Construction Inspections: Plastic fusion installation work is reviewed for overall construction compliance through periodic inspections
- Hold Point Inspections: Field Inspectors perform a pre-backfill Hold Point Inspection.
- QA/QC Field Inspections: QA/QC Inspectors (Company employees and third party contractors) perform plastic fusion inspections, above and beyond the Second Inspector requirement. The majority of these inspections are full process inspections not just visual. To date ~3000 fuse inspections done this year

Fusion Quality Layers

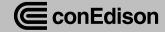
- Re-dig Inspections: Company employee QA/QC Inspectors will perform re-dig excavations on recently completed construction projects. (43 target for 2020)
 - These digs target overall construction quality i.e. backfill, marker balls, tracer wire clearances etc...
- Operator Qualification Targeted Reviews: Con Edison has developed a
 database report to compare 100% of all fuse information against Operator
 Qualification records in order to determine if any fusers or Second Inspectors
 performed a fuse or inspection, as applicable, while not qualified to do so.

Fusion Quality Layers

- Normal Course of Business Exposed Fuses: All fuses exposed during the normal course of business are visually inspected
- Monthly Leak Survey: entire system is checked for leaks monthly during a mobile leak survey inspection

Con Ed Pipe joining Defense Layers Failure analysis

- Any plastic pipe failure that is noted in the field is brought into Con Edison's Gas Lab department and analyzed to determine root cause of the failure.
 - Any relevant information from these is then shared throughout the company to ensure we do not have repeat instances of failures



Future State

- R&D effort to create a laser scan device to determine if joint meets all visual acceptance criteria
 - Try to make the process more objective
 - Reduce risk