TECH TIPS FROM NASSCO

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GARBAGE IN, GARBAGE OUT:
QA/QC GUIDELINES FOR CONTRACTORS PERFORMING PACP INSPECTIONS

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Closed Circuit Television (CCTV) Inspections of pipelines is the simplest and most valuable tool to monitor the condition and performance of our underground sewer and storm water assets. The video and PACP database produced from these CCTV inspections are used to prioritize maintenance and rehabilitation efforts, and is critical for pre- and post-construction measurements and validation. However, most advanced inspection technology becomes useless if the final data isn't useful, and just a few data errors will cause the Owner to question the validity and accuracy of the remaining data.

Stringent QA/QC procedures will ensure a successful project, and will prevent the dreaded "garbage in, garbage out" scenario. These QA/QC guidelines cover three phases of a project: Project Planning, Project Deployment, and Project Delivery. It is important, but often overlooked, to start any QA/QC program at the beginning of the project, instead of waiting until the very end.

PROJECT PLANNING:
Project planning should begin immediately upon contract ratification.

- Obtain a list of pipelines to be inspected in Excel format. List should include US and DS manhole numbers, Pipe Segment Reference (PSR) Number, size, material, length, map page, and other pertinent information.
- Obtain maps from clients' GIS system. maps should include, at a minimum, all project pipelines and manholes with the PSR numbers and manhole numbers listed, street names, and street and property boundaries.
- Obtain GIS Shape or Geodatabase files for the inspection area, if desired, and useful.
- Obtain from Owner what version of PACP software that they are using.

PROJECT DEPLOYMENT:
After the project planning phase, and a start date is set, the crew will mobilize to the site and begin inspection operations. The following QA/QC guidelines should be followed:

- Enter correct Upstream and Downstream MH ID's and Pipe Segment Reference. Alternatively, you can prepopulate the header information by importing the GIS pipeline data obtained from the client into the PACP software. This will help reduce data entry errors.
- Ensure camera is in focus and there is no debris on the lens that will result in an unacceptable video. All remaining PACP inspection procedures should be followed.
- A field log should be maintained, and all completed inspections recorded as the work progresses.

It is good practice to expand the project spreadsheet provided by the client with additional columns for information that can be added in the field. Inspection Completion Date, Actual Diameter, Actual Material, Inspected Length, and a Comments section to note any general observations or concerns that you would like the client to know immediately. Accurate field records at this point will help the final QA/QC process before delivery.

PROJECT DELIVERY:
Accurate and complete data delivery is the most important part of the project, and is what the Owner has hired the Contractor to provide. Any errors in the data will immediately cause the Owner to reflect negatively on the deliverable, and to call the other results into question. All data must be checked for accuracy before submitting to the Owner.

- Export the PACP Project Summary Report for the entire project.
- Compare and ensure that all information from the PACP Project Summary Report matches the Field Log Spreadsheet, and that all inspections in the scope of work have been completed. Correct any discrepancies. Particular attention should be paid to the following:
  - Pipe Segment Reference
  - US and DS Manhole numbers
  - Pipe Size
  - Pipe Material
- Export the PACP Report with Scoring. Select lines with the highest PACP scores to perform in-depth QA/QC as these are the lines that will be most important in the Owners review. Lines selected should include ALL lines with a PACP score of 4 and 5, or 10% of the inspections with the highest scores, whichever is the largest number of segments.
  - Open the high-score inspection video.
  - Review the header information on the video for accuracy by comparing against the Field Log Spreadsheet.
  - Review all PACP defects and ensure the defects are coded correctly.
  - Correct any errors and save record.
  - Open next high-score inspection.
- Prepare a Final Discrepancy Report for the client which describes any field conditions that differ from mapped conditions, using the Field Log Spreadsheet as a guide.
- Deliver to Owner one complete PACP database of all inspections, all videos and snapshots, PACP Scoring Report, PACP Pipe Graph Report, the Field Log Spreadsheet, and the Final Discrepancy Report.