

# TANK EVALUATIONS

Your source for unmatched water storage tank evaluation

TIC performs tank evaluations to meet each tank owner's needs. TIC currently performs two methods of evaluating tank interiors: a drained "dry" evaluation which often supplies the most accurate assessment, an underwater evaluation performed by a robotic inspection.

TIC's **ROV inspection** utilizes a robotic device, guided and monitored by one of TIC's specially trained field technicians, to videotape the tank interior. The ROV operator knows the problem areas that need to be closely examined and can "interpret" the video to more closely evaluate areas of concern that would be overlooked by someone who was not intimately familiar with water tank design and maintenance.

Regardless of the type of evaluation performed, our evaluations are designed to uncover problems, and to develop methods to reduce rehabilitation costs.

## Field Evaluation

During the field evaluation, TIC's technicians access the tank surfaces by rigging and rappelling down the exterior to identify sanitary, safety, or structural deficiencies. While rappelling, the technicians look for tank irregularities to be analyzed by our engineering staff. Ultrasonic thickness measurements of the steel will be taken so that a structural engineer can analyze any deviations from the original thickness. The exposed portions of the steel tank foundations and the sidewalls of the concrete tanks are visually evaluated to locate cracks, spalling, erosion, or other types of deterioration.

## Coating Evaluation

Coating samples taken during the field evaluation are tested to determine their lead, chromium, and cadmium content. Based on the findings of the coating evaluation, the environmental concerns that need to be addressed during the cleaning and painting of the tank will be determined. In addition, containment, testing, and debris disposal requirements that will be included in the project specifications will be made



**We do tanks...only tanks!**

## Structural Review

As part of our evaluation, TIC will identify any observed structural deficiencies or damage that may have occurred since the tank was erected. These deficiencies include deviations of existing tank conditions from the tank's original construction. Any deficiencies found will be analyzed for their affect on the structural integrity of the tank.

## Evaluation Report

An engineering report concerning the condition of the tank, certified by a Licensed Professional Engineer on our full-time staff, is issued for each tank. The reports will include the following sections.

**Observations:** The observation section provides dimensions of the tank and accessories as well as a narrative describing the condition of the site and each part of the tank. Sanitary, safety, security, structural and coating deficiencies are described as well.

**Recommendations:** The recommendation section of the report includes those repairs and modifications required to bring the tank into compliance with present AWWA, OSHA, and sanitary standards and regulations. Coating recommendations are made, along with the anticipated timing of future coating repairs. When practical, alternative methods of repairs, modifications, and painting are provided, and advantages and disadvantages of each alternative are given. Comparative analyses of coatings and linings are continually performed by TIC as new products and technologies are developed for the coatings and lead-paint abatement industry.

**Economic Factors:** The economic factors section of the report provides budget estimates for all of the repairs, modifications, and painting options outlined in the recommendations section of the report. The replacement cost of the tank is also provided for cost comparison.

**Photographs:** Each report contains color photographs of the tank. The photographs are individually mounted with captions adjacent to each photo to explain what is shown in the photo. The photographs serve as additional documentation of the tank's

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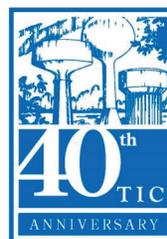
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## D101—INSPECTION OF WATER TANKS AND RELATED FACILITIES

The AWWA D101 standard for the inspection of water storage tanks was last revised in 1953. The standard was reaffirmed without revision in 1986, and withdrawn by AWWA in December of 1998. In 2013, the AWWA Standards Council authorized the formation of a Revision Task Force to completely re-write D101. **Chip Stein, P.E., TIC's Managing Principal, chairs the D101 Committee** that is in the process of revising the standard.

When published, the new standard will include several changes from the previous version. The standard will potentially address a number of types of tank-related structures, not just steel water tanks. As envisioned, the standard will also include information about the inspection of new tank construction and tank rehabilitation projects, inspection of existing tanks, and recommendations for selecting qualified tank engineers and inspectors.