



Published as an informational service to Owners and Engineers of Steel Water Storage Tanks by
TANK INDUSTRY CONSULTANTS, INC., P.O. Box 24359, Speedway, IN 46224, E. Crone Knoy, P.E., Pres.
Speedway, IN 317/244-3221 * Laurel, MD 301/880-4004 * Houston, TX 713/789-0989

EDITOR'S CORNER

Believe it or not, we're actually on schedule this time! The last TANK TALK® is only six months old. Winter is upon us and all painting projects in the North are coming to a halt. The surge of fall meetings is over, and the winter meetings start up in January. We are in our fifth year of TIC® Seminars.

We are pleased to announce the addition of Herman Lim, E.I.T., and Jo Ann Ballenger to our staff. Herman is assigned as Project Engineer in our Laurel office. He comes with a BS in Mechanical Engineering from Cornell University. Hailing from Flushing, NY, his outside interests include basketball, being active in the National Asian Basketball Association of America. His quick wit and alertness to detail have already become valuable assets to TIC. Jo Ann is the new voice on the telephone at our headquarters office. Her previous office experience adds to the professional nature of our office. Jo Ann spent 7 years as a property manager, and 4 years as a computer operator. She attended Indiana University where she studied journalism. Jo Ann is married and has 5 children.

Our tenth year of operation is a satisfying one. It's the people we work with as clients, industry colleagues, and fellow employees that make it all worthwhile.

AWWA STANDARDS UPDATE

Recently published tank-related standards available now from AWWA are:

- D110-86 Standard for Wire-Wound Circular Prestressed-Concrete Tanks
- D130-87 Standard for Flexible-Membrane Linings and Covers

Still in process are the revision of D102 for Coating Steel Water-Storage Tanks, and the new D104 Cathodic Protection for Steel Water-Storage Tanks. The D100 Revision Task Force is at work. The Steel Tank Manual is in its final draft. An operator training series for water storage tanks is under production.

For copies or information, contact American Water Works Association, 6666 W. Quincy Avenue, Denver, CO 80235, phone 303/794-7711.

TIC'S GREG HOWEARTH TO LEAD SESSION AT LEAD PAINT REMOVAL SYMPOSIUM FEBRUARY 28 - MARCH 2

The Steel Structures Painting Council Lead Based Coating Removal Symposium will be held in Arlington, VA. It is co-sponsored by the American Water Works Association this year. Greg Howearth will lead the session concerning the painting of water storage tanks under environmental regulations. For more information contact Greg or SSPC.

TIC SEMINARS

Again, seminars will be offered by TIC concerning "Steel Water Storage Tanks, Design, Construction, and Maintenance". Locations and dates for winter 1989 will be:

- Houston, TX - January 18 & 19
- Columbia, MD - February 7 & 8
- Indianapolis, IN - March 14 & 15
- Tarrytown, NY - March 28 & 29

This two-day seminar is a combination of TIC's former two-day Tank Maintenance and one-day New Tank Design and Specification Seminars. The course is designed to familiarize the participant with the tank maintenance and new tank construction procedures that will help maximize the life of a steel water storage tank, and minimize the problems associated with tank operation.

These seminars have received acclaim from all who have attended. Remarks on critique sheets have been "...an excellent source of very important data and information concerning water tanks." "This was the best seminar that I have been to." "We will be sending more people down to attend this seminar." "...the presentations and course materials were excellent." "I was very impressed with your personnel and organization." "This course was beneficial to me in understanding paint and metal adhesion, stress load of steel, etc." "Excellent seminar. I learned a lot about the entire tank construction and coating industry." "Seminar was very well organized, good handouts, excellent presentations."

For additional information and/or registration, please write or phone Penni Snodgrass.

FAILURE SURVEY

There has been increasing public concern about the safety of steel water storage tanks. This has been brought to people's attention by the publicity concerning the failure of the Ashland Oil tank almost a year ago. Of the failures of tanks that I have investigated over the past 28 years, invariably, no failure was due to only one cause. Each failure was always due to at least two causal effects occurring at the same time. They usually consisted of a combination of the following:

- Inadequacies in design
- Inadequacies in assembly or welding
- Inadequate materials
- Unanticipated operating conditions
- Unanticipated loadings
- Corrosion, other deterioration, or damage
- Foundation or subsurface failure

For example, moderately over-stressed designs have failed only when accompanied by poor welding, corrosion, or another one or more of the above causes. In my thinking, this pattern of needing more than one cause to precipitate a failure, is excellent historical evidence of the adequacy of the present standards.

In an effort to prove my point and provide information which will be of benefit to the water and the tank construction industries, TIC[®] is conducting a tank failure survey. This survey will be limited to failures where there was a rupture or collapse of a tank, and the tank or its contents caused personal injury or death, or significant property damage. Collapses or "blow-ins" during construction are not considered to be failures. Leaks not propagating a rupture are not to be classed as failures unless the leak undermined the tank or caused other structural damage which then caused a failure. We are looking at water tank failures only. We definitely are not looking for information concerning bulk (granular or solid) materials bins and hoppers.

If you think you have information concerning a tank failure, call or write our headquarters office. Ask for Todd Moore or me. We will then forward a data sheet for you to fill out. Confidentiality will be maintained when requested.

This information will be used as a data base to determine if changes are required in design or construction methods, or if additional evaluation of existing tanks is required. Present information indicates that steel water storage tanks are quite safe.

SPFA LOOKS FOR OLDEST WATER TANK

Earlier this month at a meeting of the Steel Tank Committee of the Steel Plate Fabricators Association, plans were announced to search for the oldest steel (metal plate) water storage tank still in service on a regular day-to-day basis. A prize will be awarded to representatives of the owner of the tank. Two individual registrations to the 1989 American Water Works Association Annual Conference and Exhibition in Los Angeles will be awarded. Recognition of the winner will be given at the Conference. Worldwide publicity is anticipated.

For entry information, contact Ward Gill, Executive Director, Steel Plate Fabricators Association, 2400 S. Downing Ave., Westchester, IL 60153, Phone 312/562-8750, FAX 312/562-8436.

COLD WEATHER

As we enter the winter months, we feel compelled to remind you northerners (and southerners who may get temperatures below 32°F) to operate your tanks in accordance with the Cold Weather Operating Procedures outlined in the paper which I presented at the 1982 AWWA Distribution System Symposium. The Water Department at Great Falls, Montana has been using these procedures and has not had a cold weather related tank operating problem since implementing our suggested guidelines. If you want a copy of this paper, call or write. In the meantime, keep the water moving. Pump water in at night and draw out during the day. Don't let the altitude valve or pump controls keep the water in the tank static. Check your vents and overflows for obstructions.

SPECIFICATIONS

TANK TALK[®] 9 discussed the need for comprehensive technical specifications and legal documents for proper execution of a structure repainting project. In the past, there was primarily the relationship between the Owner, Contractor, and Engineer or Inspector to be covered by these documents. The proliferation of environmental regulations has added new dimensions to the project. The need for an integrated approach to a rehabilitation project is exemplified by the need for the initial evaluation, the contract legal conditions, the technical specifications, and the inspection to be performed in an integrated manner. Not that I told you so -- but, look at the paper presented at the SSPC Annual Conference by yours truly in February 1986, "An Integrated Approach to Maintaining Steel Structures".