



*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

As we end our tenth year at TANK INDUSTRY CONSULTANTS, we want to again express our appreciation for the continued faith our clients have placed in us. Our corporate objective is to give the best independent opinions available concerning the design, construction, and maintenance of liquid storage tanks to tank owners, engineers, and contractors.

New personnel at TIC® include Victor Risch, Farley Purvis, W. B. Hanna, and Eric Meeks. Vic Risch, a Registered Professional Engineer, brings 26 years of engineering experience including 15 as a design engineer for Universal Tank & Iron Works, Inc. Farley has 17 years experience in tank related work, and has completed Session 1 of the NACE International Coating Inspector Certification Program. W.B. (Bruce) Hanna brings over 25 years work experience and was a foreman over tank painting and erection crews for more than 15 years. Eric is completing his degree in business at Indiana State University. He has joined our accounting department.

Bill Daugherty now heads our East Coast office as Regional Manager. Number one son Ed Knoy has left TIC after 9 years service to join the Advanced Engineering Group of the Ford Motor Company to work with his first love -- automobiles.

TIC SEMINARS

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

- Orlando, Florida - August 14-15, 1989
- Ontario, California - August 22-23, 1989
- Speedway, Indiana - January 30-31, 1990
- Philadelphia, Pennsylvania - February 21-22, 1990

Please call Penni Snodgrass at 317/244-3221 for registration information.

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TIC SHOWS NEW TECHNOLOGY AT 1989 AWWA ANNUAL CONFERENCE & EXPOSITION

Look for us at booth number 843 at the 1989 American Water Works Association Annual Conference and Exposition in Los Angeles June 18-22. Drop by and see Bill, Steve, Cindy, and Crone.

We will show you our computerized Condition Rating and Maintenance Prioritization System. This system, developed by our Chip Stein and Steve Roetter, -- has been designed to provide our multiple tank owner clients (some have over 60) with a means of tracking the condition of tanks as their condition is assessed and they are renovated. This system provides budget updates for future cleaning, painting, and maintenance as well as pinpointing those with immediate safety, sanitary, and structural needs.

TUTORIAL ON MAINTAINING AGED STRUCTURES AT DECEMBER SSPC ANNUAL MEETING AND SYMPOSIUM IN HOUSTON

The Steel Structures Painting Council Annual Meeting and Symposium will include a "Tutorial" on Maintenance Alternatives for Aged Structures. These two hour sessions will feature hands-on assessment of steel and coating condition, determining maintenance alternatives, and deciding which alternatives will best accomplish the objectives for the structure. The SSPC Guide to Maintenance Painting will be used as a framework for the tutorial. Crone Knoy, Greg Howearth, and Mike Doolittle of TIC will conduct the sessions.

SPFA OLDEST STEEL TANK IN SERVICE WINNER NAMED

Baraboo City Water Works, Baraboo, Wisconsin submitted the winning entry in the oldest steel tank in service search recently conducted by the Steel Plate Fabricators Association. The winning tank was a 277,000 gallon riveted standpipe constructed in 1886 and placed in service in 1887.

NEW NSF STANDARD FOR INTERIOR TANK COATINGS

NSF Standard 61 - Drinking Water System Components - Health Effects, covering indirect additives, was officially adopted in 1988. The National Sanitation Foundation is the lead organization of a consortium who was contracted by USEPA to develop standards using a voluntary consensus process. All parties at interest were represented, including regulatory agencies, industry, and water suppliers, consultants (including TIC on the Protective Materials Task Group), and other users of products covered by the standards. Another standard, NSF Standard 60 has been developed covering products added directly to the water for its treatment.

An example of an indirect water additive is Process Media. Indirect water additives of concern to water tank owners will include Mechanical Devices (such as valves and electrical wire and devices), Joining and Sealing Materials, Pipes and Related Products, and Protective (Barrier) Materials. TIC's involvement and concern has been primarily with this last category, which in everyday language means interior tank paints. The objective of the NSF Standard 61 testing and listing process will be to establish minimum requirements for the control of potential adverse health effects from products in contact with water. Of past concern was the leaching of dangerous metals such as lead, chromium, or mercury into the water. Now of additional concern is the leaching of organic chemicals like methyl ethyl ketone and xylene into the water.

Presently coating manufacturers are in the process of the Toxicology Data Review Submission to NSF. The composition of formulation of all coating components, including Materials, Ingredients, Reactants, or Processing Aids are being submitted for review.

The final stage will be the laboratory testing of the coatings applied to glass test slides and exposed to test water. Concrete admixtures, form release agents, curing compounds, or other concrete coatings will be applied to concrete test blocks and exposed in a similar manner. The test water will be evaluated for leaching of suspected dangerous ingredients at various exposure times. A testing protocol has also been adopted to determine the potential of the coating to support microbiological growth. Testing to determine the potential of a product to impart taste and/or odor to drinking water is not included in this standard.

The present USEPA approvals will be withdrawn April 7, 1990. What do you do in the meantime to assure that coatings you are specifying to be applied after April 7, 1990 will be certified? We suggest that you utilize only those coatings that are supplied by manufacturers who are presently participating in the approval process. Start gather-

ing data on what presently manufactured coatings seem to be complying with the intent of the NSF Standard at this time. TIC's experience with most of today's popular high-build epoxy coatings show that they will comply if properly mixed, applied, and cured. Of prime importance is the ventilation during application and curing, and the washing down of the tank being sure to flush it with clean water prior to filling.

A lot of time and money has been expended by water works suppliers (in this case, coating manufacturers) to develop these standards. Much more testing costs and administrative time will be expended before the manufacturers receive product certification. Our hats are off to these members of the Free Enterprise System who are working to bring safe drinking water to the public. Let's not foul-up this good work by not shipping, storing, mixing, thinning, applying, and curing the coatings in accordance with the coating manufacturers' published instructions.

FAILURE SURVEY

In TANK TALK® 11, we asked for information concerning failures of water storage tanks. Over 30,000 copies of that issue of TANK TALK were mailed. In addition about 35 letters and failure report data forms were sent to members of various tank related AWWA committees. To date, we have received requests for eight forms and none have been returned. Some informal information has been received on failures of tanks, but none are classified as "catastrophic" (causing death, serious injury, or property damage). The ones on which some information was received involved icing or other cold weather operating conditions leading to a splitting of the seams. When all data is in, a report will be compiled by TIC. The preliminary information indicates that the AWWA Standards and steel tanks are safe.

In order to maintain this level of safety, certain precautions are necessary. You should be aware that:

- Leaks can cause foundation undermining or can be evidence of structural deterioration.
- Corrosion in combination with under design or poor welding can cause leaks or rupture.
- Improper modifications during relocating the tank or replacing or adding components are frequent causes of structural deficiencies. Older steels may not have resistance to brittle fracture, which can be induced by notches, cracks, or other discontinuities.
- Operating conditions or design loads may change, overstressing the tank. An example is the inadequate sizing of the vent or overflow of the tank, which can cause a pressure or vacuum condition during rapid filling or withdrawal of water.