TANK TALK®

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CHAIRMAN'S CORNER

When we begin planning each issue of Tank Talk®, I'm always asked, "What are you going to talk about in the Chairman's Corner?" Sometimes the topic comes right to mind. Other times it takes more thought and research before I select a subject that I hope will be timely and of interest to our readers. And still other times, like this issue for instance, I come up with a number of things that I want to say. Sometimes I get up on my soap box and preach, and other times I brag about this fine organization and its people. In this issue I'd like to do a little of each.

Total Quality Management (TQM)--the management philosophy of the 90's. Books and magazine articles are being written about it. Seminars are teaching its principles. CEO's are discussing it. But what is TQM?

The National Society of Professional Engineers' newsletter, "Private Practice," offers what I consider to be probably the best explanation of TQM: "Put in simple terms, it's about caring. Quality parents care about their children, quality teachers care about their pupils, and quality engineers care about their customers and associates."

I hope that TIC®'s clients and associates feel that we were practicing the principles of TQM long before it became a "three letter word." Our clients ARE the most important part of our business. Although we deal specifically with an inanimate object--a water storage tank--we strive to never lose sight of the fact that this water tank must be designed and maintained to provide the people of the community with clean, safe drinking water, in an environmentally safe and sound manner. Through our tank evaluations, project specifications, and monitoring of the contractor's workmanship, we are helping to assure our clients of a quality end product that will serve their community well for years to come.

Specialization--Recently, I read an interesting article in an engineering publication which explained that specialization appears to be the wave of the future for consulting engineering firms. Firms that are offering specialized services are finding that they are growing, even during difficult economic times. An added bonus of specialization is that these engineering firms are able to provide a higher degree of expertise in their specific area of engineering service. Funny...that sounds like what TIC has been doing for more than thirteen years!

TANK INDUSTRY CONSULTANTS is a consulting engineering firm. We provide engineering services for a very specialized market--water storage tank owners, operators, and other consulting engineers. To us, specialization is not just a theory--it's a proven way of doing business. And through specialization, we ARE better able to address the unique requirements of a water storage tank construction or rehabilitation project, and to better service our clients. It's nice to know that other consultants agree.

Independent Expertise and Opinion--TANK INDUSTRY CONSULTANTS is not affiliated with any tank fabricator, erector, painting company, or paint supplier. Because we are independent of these other companies, we can offer our clients expert, unbiased opinions and recommendations. We think that's important, and so do our clients!

Responsibility -- TANK INDUSTRY CONSULTANTS, INC. is a **professional engineering** firm. We have on our staff engineers who are registered in a total of 36 states and one Canadian province. As a professional engineering firm, we are subject to strenuous liability and insurance requirements. Unlike non-engineering firms, we have a personal and corporate responsibility for our design, evaluation, contractor observation and pollution prevention activities. To fulfill our professional obligations, TIC must decrease our clients' and our own exposure to risk. We do this by keeping abreast of the latest standards, regulations, enforcement policies, and legal actions within the industry. Each year, we spend thousands of dollars on in-house training, continuing education, participation in industry-related organizations and standards committees, and exchanging information with colleagues. In addition to our in-house "caring system," our professional operations are augmented by the risk management consulting services of the firm insuring our general, design, and pollution control activities. The end result of all these requirements and activities is that TIC is able to provide **professional** services with decreased risk for the owner, and increased protection for society and the environment.

Before you get in trouble -- Recently I was introduced to a group of water company engineers as, "...the guy who runs the firm that we call when we get into trouble." As I reflected on the day, I realized that my response should have been, "Wouldn't it make more sense and save money to call TIC at the beginning of the project to keep from getting into trouble?" This same concept was brought to mind when a flight attendant noted the small compass I carry on my briefcase. "Oh, is that in case you get lost?" she questioned. This time, however, my response was immediate... "No, it's to keep me from getting lost in the first place!"

Think about it!

THE IMPORTANCE OF USING A PROFESSIONALLY TRAINED INSPECTOR

by Larry Stempkowski

There are no licensing procedures or regulations governing who can inspect the painting and repair of a water tank. Unfortunately, contracts for inspection services are frequently awarded to the lowest bidder, and are not awarded based on qualifications and experience. Like anything else...you get what you pay for. So, how can you be assured that you are hiring a good inspector? A good inspector or technician is one who has a combination of industry experience, extensive technical training, and professional support.

Industry Experience: Understanding the practical side of the tank painting and abrasive blasting industry is the cornerstone on which a good inspector builds. Knowledge gained from the actual use of painting, blasting, and rigging equipment enables a technician to observe the contractor's workers and know whether or not they are using the proper technique to achieve the quality coating system the owner is paying for.

A working knowledge of the proper use of testing equipment and the applicable industry standards is also a vital part of an inspector's job. Understanding the standards for proper surface preparation is crucial. Proper surface preparation makes or breaks a coating system, and therefore the tank painting project. Knowing the standards of AWWA, SSPC, NACE, and other industry organizations, and applying these standards to the project will help provide the owner with a good paint job that can maximize the life of the coating used. Experience with coatings, especially today's high-tech coatings, is also critical if you want a high-quality, long-lasting paint job. A technician without the proper equipment, knowledge, experience, and understanding of applicable standards is like having a gourmet chef prepare a meal for you using a shovel and hoe--it just doesn't work.

Technical Training: The technology within the coatings industry is rapidly changing. In addition, the regulations governing the cleaning and painting of industrial structures such as water tanks are constantly evolving. To keep up with all of these changes, comprehensive in-house training is vital if a company wants to provide professionally trained technicians. Outside training is also available for inspectors. The National Association of Corrosion Engineers (NACE) certifies coating inspectors through their three levels of training. Technical training provides inspectors with additional insight into industry standards and the importance of complying with them, as well as increased knowledge of the specialized products and materials in a tank painting project.

Professional Support: When awarding a contract for inspection services, an owner should be hiring a company, and not one technician. The company you hire should provide a support staff capable of handling the problems and questions that can arise on the tank rehabilitation project quickly and thoroughly. The experience and training of the total organization should be carefully weighed when selecting a company to oversee your tank painting project. In this era of litigation and liability, you must also be confident that the company you are hiring has sufficient professional liability and pollution insurance to properly cover the work that they will be doing for you. Proper insurance coverage is absolutely crucial on projects involving the removal of lead-based paints.

The main objective of any tank owner contemplating a tank rehabilitation project should be to get a good, long-lasting paint job at a fair price while complying with all laws and regulations. Spend the additional money and extend the life of the coating system to its expected life by hiring a company that will provide a professionally trained technician, and has the professional capability to back up this technician. If you get the job done right the first time, you won't have to do it again for many years to come.

LEAD UPDATE

LEAD continues to be THE hot topic in the coatings industry. The removal of lead-based paints from industrial structures, including water tanks, is the focus of a number of seminars and publications. The Steel Structures Painting Council (SSPC) remains one of the industry organizations that is in the forefront of lead-based coating education and technology. SSPC is offering Lead Paint Removal Tutorials throughout the United States, and early in 1993, SSPC will host the **Sixth Annual Conference on Lead Paint Abatement from Industrial Structures.** Steve Roetter, President of TANK INDUSTRY CONSULTANTS, has been chosen to chair the Conference which will be held at the Hyatt Regency in Cincinnati, Ohio, March 15 - 17, 1993.

The purpose of the Conference is to help facility owners, contractors, specifiers, regulators, industrial hygienists and others deal with the problem of lead paint removal, abatement, and disposal. Included will be the most current information on new technology, regulations, alternative procedures, owner and contractor activities, and case histories that illustrate the successes and shortcomings of various strategies for dealing with lead abatement and removal. Special discounted registration fees will be available for end users (owners).

SSPC has also published "Guide for Containing Debris Generated During Paint Removal Operations," and "Guide for Disposal of Lead-Contaminated Surface Preparation Debris." These guides are available free to facility owners.

For more information about the tutorials, Conference, or lead guides, contact TANK INDUSTRY CONSULTANTS, P.O. Box 24359, Speedway, IN 46224 (317/244-3221), or SSPC at 4400 Fifth Avenue, Pittsburgh, PA 15213.

PROPOSED ZINC REGULATIONS DROPPED

EPA's proposed regulation of zinc-rich coatings has been dropped, along with other RCRA revisions proposed. According to published reports, EPA withdrew the proposed revisions because of the extent of the negative comments received. Concern about the regulations had been expressed within the coatings industry because it appeared that the regulations would be a "knee jerk" reaction to environmental concerns and pressures. Zinc-rich primers are currently be-

ing successfully used on industrial structures, including water storage tanks. When properly applied and maintained, zinc primers currently offer the best possible protection for the steel structures and eliminate the need to completely blast to bare steel for an extended period of time, thereby minimizing the future risk to the environment.

WE'RE PROUD TO ANNOUNCE.....

Crone Knoy, Chief Executive Officer of TANK INDUSTRY CONSULTANTS, has been elected to the Steel Structures Painting Council (SSPC) Board of Governors. For those of you who may not be familiar with SSPC, it is an organization of contractors, suppliers, engineers, and owners formed to "assess and advance the technology of surface preparation and coating of industrial structures." In recent years, SSPC has taken a leadership role in finding practical solutions to environmental issues such as the removal of lead-based coatings from steel structures.

As a member of the 16-member Board of Governors, Crone will be active in guiding the direction of SSPC's efforts for the next four years. Along with his activities as a member of the Board of Governors, Crone will continue his involvement in AWWA standards-making committees, and his duties as chairman of the AWWA Steel Tank Manual Task Force. This extensive industry involvement enables TIC® to continue to be "in the know" about the latest technology and regulations in the water storage industry. Look for additional current information about SSPC, NACE, and AWWA activities in future issues of Tank Talk®.

REPORT ON COMPOSITE TANK STANDARD

As reported in Tank Talk® 18, AWWA has formed a committee to develop a standard for the design, specification and construction of composite elevated water storage tanks--water tanks with a steel container on a reinforced concrete pedestal or tower. The committee met at the AWWA National Conference and Exposition in Vancouver in June. Presently, the biggest hurdle faced by the committee is one of philosophy--whether the proposed standard should be prescriptive or performance based. Sub-committees were formed to address pertinent sections of the standard.

Getting a standard through the approval process is a lengthy and difficult procedure. It is anticipated that it will take in the range of 3 to 5 years to get the AWWA Composite Tank Standard written and approved. In the meantime, composite tanks should be constructed to comply with all AWWA D100 and ACI standards. Tank owners who are interested in constructing a composite tank can get information from various industry organizations and contractors. The Steel Plate Fabricators Association has produced a Guideline Specification for Composite Elevated Water Storage Tanks. To get a copy of this Guideline Specification, call or write to SPFA at 2400 South Downing Avenue, Westchester, IL 60154; phone (708) 562-8750; FAX (708) 562-8436.

SPEAKING OF STANDARDS.....

The revised AWWA C652-92, Standard for Disinfection of Water-Storage Facilities, has been approved by the AWWA Board of Directors and released for public comment. Included in the revised Standard is a section on disinfection for underwater inspection and a table of chlorine concentrations.

Whenever underwater inspections are mentioned, I feel compelled to caution tank owners that **under no circumstances should a diver be allowed inside your water storage tank until you are assured that the tank is totally isolated from your system.** Some problems associated with underwater inspections include limited visibility, inability to evaluate the overall condition of the steel surface, and the need to disinfect all diving gear prior to entering the tank. These problems are minute when compared to the horror of a diver being killed or dismembered by inadvertently being sucked into the connecting piping. Sometimes it is necessary to perform diving inspections when a tank cannot be drained for inspection, and TIC® does perform these types of evaluations. However, our technicians exercise EXTREME caution when preparing for and performing these evaluations. We urge you to do the same.

TIC SEMINARS SCHEDULED

When we began hosting Water Storage Tank Seminars in 1985, little did we know how popular the seminars were to become. Now, in addition to the two-day seminars that we conduct at various locations throughout the United States, we are conducting specialized in-house seminars for individual water utilities, and this fall we did a series of one-day seminars at sites throughout Texas, in response to their need for information about state regulations. Each winter we also host a symposium for tank maintenance contractors and suppliers to discuss products, new technology, environmental regulations, industry standards, and alternative methods of tank rehabilitation and maintenance. To round out our seminar activities this year, in December, we conducted an Update Seminar to bring previous seminar attendees up-to-date on current regulations, standards, and technology. Our 1993 two-day "Water Storage Tanks Design, Construction, and Maintenance" seminars will be held:

January 27 & 28, 1993 -- Indianapolis, Indiana
University Place Executive Conference Center and Hotel

February 11 & 12, 1993 -- Orlando, Florida
Clarion Plaza Hotel

For registration information for these or other seminars conducted by TIC, contact Linda Reed, Seminar Coordinator, P.O. Box 24359, Speedway, IN 46224, or phone Linda at 317/244-3221, FAX 317/486-4708.

NATURAL DISASTERS

This past year, portions of the United States have experienced a number of natural disasters. From flooding and tornadoes in the Midwest, to the earthquakes on the West Coast, and most recently, to the southern tip of Florida where Hurricane Andrew left an immense trail of destruction--Mother Nature has taken her toll. But we in the water storage industry can be proud of the performance record of our tanks. Very few tank failures were reported despite the tremendous damage to other public and personal property.

While no tank owner can be totally prepared for such natural disasters as hurricanes, tornadoes, and earthquakes, they can be prepared for another natural phenomenon that can cause equal, if not greater, damage to their water storage tanks...ICE. As we approach the winter of 1992/93, many meteorologists--and woolly worms--are forecasting colder than usual temperatures. Take a few minutes to review your cold weather operating procedures to help assure that your tank will not freeze up this winter. Ice inside your tank not only causes damage to the coating and appurtenances inside your tank, but can also subject your tank to vacuum and loading conditions for which it was not designed and which can cause a tank failure.

Winter Check List

1. Are altitude valves adjusted properly to eliminate overflows?
2. Are control piping lines to the altitude valve and telemetry systems protected from freezing?
3. Is telemetering controlling pumps or valves adjusted to prevent tank overflows and to ensure a circulation through or turnover of water in the tank(s)?
4. Have any new appurtenances or connecting piping been added since last winter? If so, could they become inoperable or freeze and burst easily?
5. Is the overflow pipe and screen or flap gate clear of obstructions? Would your stub overflow (projecting from tank without extending to grade) allow ice to form on the structure?
6. Did you check your vent for proper screening and pressure/vacuum relief pallets operation this fall?
7. Do you have a scheduled daily "drive-by" inspection to look for icing problems?
8. Has the manner in which the tank "floats on the system" been changed since your last cold winter? Examples of what would affect this are: an increase in the pressure gradient of the water system, the addition of a tank on the system, changes in pump control or automatic valve control procedures, the closing down of a major water user, feeding the water system from a different direction or through piping with different friction coefficients.
9. Have you repainted your tank, changing it from a dark heat-absorbing color to a light heat-reflecting color?
10. Is there an industrial user or a school user who shuts down over an extended time during the winter holidays? (Even one day without consumption can cause tank freezing problems.)
11. Have you changed from warm ground (well) water to cold surface water as your water production source?
12. Have you had a change in the personnel who are responsible for overseeing your tanks?
13. If maintenance was recently performed on your tank(s), are you sure that all essential items such as vents, overflows, manholes, valves, ladders, pipe insulation, or other critical operational parts of your tank were not disturbed or changed in such a way as to cause problems?
14. If winter is already upon you and the temperature is low, have you observed an unexpected pressure build-up in the water system or are your pumps cycling on and off rapidly? <u>If so, check for a frozen tank or a frozen piping connection to the tank.</u>

Why Worry?

1. An overflowing tank can allow ice to form on the structure and damage tower components of a tower tank or place a heavy eccentric load on a standpipe or single-pedestal tank, possibly causing a tank to fall over or to be severely damaged.
2. Ice can build up on the exterior of a tank and fall onto people or surrounding property.
3. If your tank or connecting piping is frozen, no water can go into your system; and therefore, you have no fire protection water.
4. A frosted-over vent without pressure/vacuum relief capability can cause a tank container to implode due to a vacuum condition or burst due to excessive internal pressure.
5. Ice has a higher volume than water. This can cause tank seams or piping to burst, or the bottom of a ground-supported tank to bulge downwardly. If the tank has anchor bolts, they can be pulled from the concrete foundation or the anchor chairs can be torn from the tank walls. A tall, small diameter standpipe can tip over under these conditions.
6. Even temperatures only slightly below 32° F (0° C) can cause venting and overflow problems in areas so unsuspecting as southern Florida and Texas. Points of high elevation in sunny California are also subject to freezing problems.

If you would like more information about proper cold weather operating procedures, write or call TIC for copy of our cold weather paper. This paper has been featured in various industry publications. It outlines these and other cold weather operating procedures that have proven to be effective for tank owners throughout the United States.