Back to the Future: SSPC 2011

In previous editorials I have mentioned that last year's PACE show would be the final one in our six-year history of partnering with the Painting and Decorating Contractors of America (PDCA). On January 31, 2011, SSPC will hold our first stand-alone international show since 2003. This show, SSPC 2011 featuring GreenCOAT, is a four-day event, taking place at the Mandalay Bay Hotel in Las Vegas. We are excited to go back to our roots by having a show that is focused only on the industrial coatings sector. I cannot say enough about the good relationship we had with PDCA while executing the PACE show, but it is fun to think about having an expo, workshops, technical sessions, and training programs that are structured and designed by our members and staff specifically for our members and for our market.

In next month's *JPCL* you will see a complete description of all the events and exhibitors at SSPC 2011. We will have six workshops, 101 papers given in 30 sessions, 18 pre-conference training and certification programs, five post-conference training and certification programs, our peer forums, and approximately 25 committee meetings. A sneak peek at the conference shows that we have made some changes with the thought of giving you, the members, and other attendees new and refreshing material in the format you desire. Here is a preview of some of the enhancements.

The conference will kick off on Monday, January 30, instead of our normal Sunday start. On Monday, we will have technical sessions and a reception for first timers. This will be followed by what I am sure will be a great welcome reception sponsored by the Carboline Company.

On Tuesday, our keynote speaker is scheduled to be Robert A. Dye, Ph.D. In previous conferences we have had many motivational speakers. This year we have decided to be a little more focused on giving our attendees information that may be of use in assisting them in these uncertain economic times. Dye is senior vice president and senior economist for the PNC Financial Services Group. He directs PNC's U.S. macroeconomic model and is responsible for contributing to PNC's analysis and forecasts of key economic and financial trends nationwide and globally, including daily economic releases, the weekly Market Expectations Survey, and the monthly National Economic Outlook. Dye provides economic analysis for a variety of media outlets and presents the PNC Economic Outlook throughout the United States.

In previous years, we have had the annual business meeting before the Carboline reception. This year we will have a luncheon that will include the annual meeting and the presentation of our association awards. This move is significant because it gives all the award recipients the opportunity to be recognized by more of their peers. We had been asked to make that change for many years but considering the constraints of the merged show with PDCA we were unable to do so. Now that we are back on our own, we can make it happen.

Tuesday also features a new emerging leaders' program directed toward developing and enhancing one's leadership skills. Here, successful SSPC members will share their knowledge about moving forward in their career paths in the coatings industry. A special speaker, Dustin Peterson, from the University of Nevada, Las Vegas, will talk about increasing self-awareness as a leader and learning specific strategies for leading others.

Wednesday's highlight will be the Women in the Coating Industry sessions. Don't miss the chance to ask questions and to hear practical advice and guidance for and about women in the workplace.

Each year SSPC and the QP-certified contractors sponsor a breakfast for facility owners. This will occur on Thursday morning. Instead of the Peer Forums taking place after the breakfast, they will now take place during the breakfast. The breakfast forums will take place in three different rooms and encompass: water/waste water and marine/offshore, chemical/petrochemical/power, and DOTs. All facility owner attendees are invited to the breakfast and Peer Forums. This is your chance to benefit from the experience of your peers or to share your own knowledge.

Finally, in previous years, we have closed the show with a party. This year we plan to close the show Thursday evening with—what else—a party.

Please look at next month's *JPCL* for complete details about the conference, and take advantage of the interactive Technical Program listings at www.SSPC2011.com. The SSPC staff and I look forward to seeing you there.

Bill Shoup
Executive Director, SSPC

RPM Acquisition Expands Waterproofing Line

The RPM/Belgium Group has acquired Hermeta Chemie GmbH, based in Berlin, to broaden RPM's waterproofing product offerings for pedestrian traffic decks, industrial floors, and balconies.

Hermeta produces polyurethane- and epoxy-based coating systems. The products are highly complementary to lines currently offered by RPM/Belgium and Alteco Technik, RPM said in a statement.

The RPM/Belgium Group is a leading manufacturer and supplier of industrial flooring systems and specialty waterproofing systems. Its products include the one-coat Matacryl WPM bridge deck waterproofing system, which recently received HAPAS BBA Certification for use as a bridge deck liquid waterproofing system under asphalt for concrete decks of highway bridges.

The company's specialty waterproofing systems also include the Alumanation 301 anti-corrosion system; Dual Seal waterproofing membrane for below-grade areas; Durabran protective coatings for concrete and asbestos cement and cement sheets; and Vulkem Quick for stadiums, steps, balconies, and terraces. Industrial flooring systems include Monopur polyurethane concrete floors; and Monile, an acrylate-modified cementitious mortar.

Hermeta Chemie, established in 1918, specializes in low-solvent, polyurethane, weather- and color-resistant floor coatings for indoor and outdoor application.

UK Research to Focus on Infrastructure, Coatings

Two UK universities are establishing "Innovation and Knowledge Centers" designed to turn research about infrastructure, coatings, and other technologies into commercial enterprises.

Backed by £20 million ($31.8 million) in funding from the Engineering and Physical Sciences Research Council (EPSRC) and the Technology Strategy Board, the centers will build on four existing centers and will become "centers of excellence to achieve major scientific breakthroughs," planners said in a statement.

At the University of Cambridge, the Innovation and Knowledge Centre for Smart Infrastructure and Construction will develop and apply emerging technologies to monitor, quantify, and define the extent of aging and consequent remaining design life of existing critical infrastructure assets.

At Swansea University, the new center will be called SPECIFIC: the Sustainable Product Engineering Centre for Innovative Functional Industrial Coatings.

TPC Announces Updates to Coatings Newsletters

PaintSquare News, the electronic daily newsletter for protective and marine coatings professionals, will have a new look this fall but the same strong reporting by Editor-in-Chief Mary Chollet, said Harold Hower, CEO of Technology Publishing (TPC).

Technology Publishing's portfolio also includes *JPCL*, Paint BidTracker, and *Durability + Design*.

Now in its second year, *PaintSquare News* reaches more than 70,000 protective and marine coatings professionals every day, with industry news, daily quizzes, Problem Solving Forum, reader polls, *JPCL* features, and more. Subscribe free at www.paintsquare.com. *PaintSquare News* welcomes industry-related news, events, and product releases. Submit news items to Mary Chollet at mchollet@paintsquare.com, or call 888-590-8942 for more information.

In January 2011, TPC will roll out the first print edition of *Durability + Design (D+D)*, the electronic daily newsletter for architectural coatings professionals, which launched in August.

Editor-in-Chief Joe Maty and Publisher Sharon Steele head up both the print and electronic editions of *D+D*.

More than 80,000 readers involved with architectural coatings receive the free daily newsletter.

To subscribe to either the print edition or daily newsletter, visit www.durabilityanddesign.com.

Submit items for *D+D* to Joe Maty at jmaty24156@aol.com or Sharon Steele at ssteele@protectivecoatings.com. Or call 800-837-8303 for more information.

SSPC/*JPCL* Dec. Webinar on Maintenance Painting at a Petrochemical Plant

The webinar "Developing a Maintenance Painting Program at a Petrochemical Plant" will be presented on Wednesday, Dec. 8, from 11 a.m. to noon by Ken Trimber, president of KTA-Tator.

The webinar will explain how to develop and collect data via condition assessments using visual standards and other tools, how to create and navigate a decision tree, and how to develop a uniform specification for coating work. This webinar is the last of 20 presentations in the 2010 SSPC/*JPCL* Education Series, providing continuing education for SSPC recertifications, as well as technology updates on important topics.

Participation in the webinar is free, but for those who wish to receive continuing education credits from SSPC, a test is available after the webinar at a cost of $25.

SSPC is an accredited training provider for the Florida Board of Professional Engineers (FBPE). PEs in Florida can now submit SSPC Webinar Exam CEUs to the FBPE. If interested in submitting webinar CEUs, you must download the FBPE CEU form at www.sspc.org/marketplace and successfully pass the webinar exam.

Record Protective Coatings Sales Boost PPG's Q3

Record sales and earnings for protective and marine coatings helped drive PPG Industries to an overall 7% increase in third-quarter sales and record earnings in several segments, the Pittsburgh-based company reported on October 21.

Declines in the North American architectural coatings business offset solid growth in several of PPG's top-performing businesses, including protective and marine coatings, automotive refinish, aerospace, industrial coatings, commodity chemicals, and fiberglass, as well as growth in the Asia/Pacific region, the company said.

PPG's third-quarter segment earnings grew by more than 35% compared with the same period last year, said chairman and CEO Charles E. Bunch. Overall sales volumes grew 6% over 2009, even with the decline in architectural coatings businesses serving the mature regions.

Overall third-quarter sales totaled $3.5 billion, an increase of 7% over the third quarter of 2009. Third-quarter reported net income was $262 million, or $1.58 per share. Third-quarter 2009 sales were $3.2 billion, with reported net income of $159 million, or 96 cents per share.

The Performance Coatings segment sales in the third quarter of 2010 increased $28 million, or 3%, compared to last year's third quarter as a result of higher selling prices. The protective and marine coatings business had a record quarter for sales and earnings. Segment earnings grew $19 million, or 12%, to a new quarterly record of $174 million as a result of the improved business mix and lower cost structure.

PPG Industries operates globally.

AkzoNobel Posts 13% Revenue Increase for Q3

Double-digit gains in Performance Coatings and Specialty Chemicals boosted AkzoNobel to a 13% overall increase in third-quarter revenue, the company reported on Oct. 21.

The world's largest paints and coatings company, also a major producer of specialty chemicals, reported €3.9 billion (about $5.4 billion US) in revenue for the third quarter, which ended Sept. 30, compared with €3.4 billion (about $4.7 billion US) for the third quarter of 2009. EBITDA for the third quarter rose 9% to €574 million (about $800 million US), with total net income rising 21% in 2009 to €238 million (about $332 million US).

Performance Coatings and Specialty Chemicals reported the strongest revenue increases of 18% and 15%, respectively. Decorative Paints revenue was up 8%. Performance Coatings revenue increased by 15% in the first nine months of 2010, while Specialty Chemicals rose 12% in the same period.

Performance Coatings' strong showing was supported by the acquired powder coatings activities (5%) and a favorable currency translation effect (8%), AkzoNobel said. Volumes increased in all businesses, especially in high-growth markets.

Demand remained strong across the Specialty Chemicals portfolio. Demand from most end-use markets improved over 2009, particularly in Asia and the Americas.

Strong revenue gains continued to be achieved in high-growth markets across all business areas, while revenue development in the mature markets remained weak, the company reported.

SSPC 2011 featuring GreenCOAT will take place Jan. 31–Feb. 3 at the Mandalay Bay Resort in Las Vegas. Turn to p. 42 of this issue to preview the technical program. Look for complete conference coverage in the December *JPCL*. Updates and more information can be found at www.sspc2011.com.

On Keeping Steel Clean in Food Plants

When a food plant runs 24/7, even during coating maintenance, tiny food particles floating in the air (e.g., sugar from sugar processing) in the plant can contaminate a prepared surface. How do you prevent such contamination, or identify it and remove it before applying the coating?

From Remko Tas
Futuro SRL

Preventing contamination by airborne particles can be done by enclosing the maintenance area with canvas or plastic sheets and applying a slight atmospheric overpressure. Removing any such material can be done by brooms, pressured air sweep, and ultimately vacuum cleaner. Identifying contamination depends on the material, but often it can be done in the first place by simple vision; if not, reactives could be used, but precaution should be practiced because these may contaminate as well.

More Problem Solving Forums

The answer above came from *PaintSquare News*, the electronic protective and marine coatings newsletter from Technology Publishing, which also publishes *JPCL*.

You may ask or answer PSF questions through *PaintSquare News* (subscribe at www.paintsquare.com) or by emailing kkapsanis@protectivecoatings.com at *JPCL*.

Some PSF questions recently published in *PaintSquare News* include the following.

- When we use field splice plate connections on structural steel projects, how do we prevent rust and rust staining at bolt heads and at the splice plate/steel interface?
- How do I determine when a cementitious-based mortar used to repair exterior concrete is ready to be coated?
- What is the best way to remove thick film elastomers from floors and ship decks?

THE CASE OF...THREE... PART 1 of 2.

By Richard Burgess, KTA-Tator, Inc., Series Editor

The monthly F-Files cases have been presented for nearly two years now. This month we present the "Case of Three"...consultants, that is. This case is presented in two parts and discusses an all too familiar scenario; two or more consultants offer contrasting opinions despite having access to the same information and physically examining the same coatings on the same structure.

This situation is very common. A problem exists after a (re)painting project, which is going to cost to remedy. Both the owner and the contractor employ consultants to comment on the reasons for the failure. However, both

Continued

Corrosion at bearing
Photos courtesy of the author

Table 1: Project Requirements Included and Not Included

Required	Criteria	Not Included
Materials	Three-coat system. Organic zinc rich (OZR) primer, epoxy, [poly]urethane. Clean, recyclable abrasive.	
QC Hold Points (QHP)	Contractor and owner inspections (prior to proceeding)	
Solvent Cleaning (QHP)	As detailed on plans[1] (oil, grease, salt, dirt, etc. followed by wash)	
Dress Edges, Corners (QHP)	As detailed on plans	
Abrasive Blast Cleaning (QHP)	Remove interference materials, blast clean to SSPC-SP 10 as depicted in VIS 1. Anchor Profile 1.5 to 3.5 mils.	Compressed air cleanliness test for abrasive blast cleaning air. Testing or acceptance criteria for non-visible contaminants, specifically soluble salts (e.g., chlorides). Abrasive cleanliness.
Prime Coat Application (QHP)	Verify surface cleanliness, apply primer the same day surfaces are blast cleaned. Work the paint into all crevices, corners, and around all bolt and rivet heads. Check DFT[2] [following adequate cure] per the method specified[3] and as detailed on plans. Specified DFT – 3.0 to 5.0 mils.	Base metal reading adjustment. Stripe coating requirements.
Dress Surface Defects (QHP)	Remove surface defects apparent after prime coat application, spot blast, reprime.	Apparent is not defined and taken to mean easily visible or observed.
Caulking (QHP)	As detailed on plans	
Intermediate Coat (QHP)	Verify surface cleanliness and apply. Work the paint into all crevices, corners, and around all bolt and rivet heads. Check DFT after adequate cure. Total of both coats 8.0 to 12.0 mils (intermediate coat 5.0 to 7.0 mils).	No requirements for stripe coating.
Finish Coat (QHP)	Verify surface cleanliness and apply. Work the paint into all crevices, corners, and around all bolt and rivet heads. Check DFT after adequate cure. Total system 10.0 to 16.0 mils (finish coat 2.0 to 4.0 mils).	
Final Visual and DFT (QHP)	Acceptance of appearance and DFT	

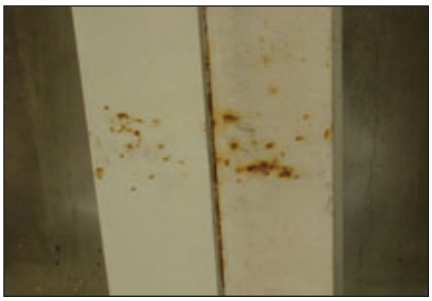
1. The specification referred to project plan notes [when required]. No project plan notes were provided.

2. Values may be 80% less than the minimum or 150% greater than the maximum specified DFT.

3. DFT measurements are obtained using a process similar to SSPC-PA 2.

the owner and contractor have different agendas. The owner is trying to prove that the contractor did not carry out the work according to the specification and thus should pay for the remedial work. The contractor, on the other hand, is trying to prove that he followed the specification exactly and that either the wrong specification was given or the wrong coating was used (or there was a fault with the coating itself), and, therefore, he should not have to pay for any repair work. The appointed consultants, therefore, have different briefs and as a result, look at the problem from different angles. Their different perspectives can result in a differing of opinions about the reasons for the failure.

The first part of this case, being presented this month, provides the background information, statements of fact as presented by consultants (as the writer understands them), and a summary of the conclusions reached by each consultant. However, there is a twist. By intention you are provided limited context, and none of the fact statements or conclusions you are given are attributed to any particular consultant. Simply put, you are provided with lists of observations (fact statements) and conclusions reported by Consultant A, Consultant B, and Consultant C—Arnie, Buck, and Chuck if you prefer. You learn that the owner and contractor each hired a consultant, but you do not learn the specific tasks assigned to each consultant. These will be discussed in part two, along with a few of the key position arguments from Arnie, Buck, and Chuck. You are welcome to—no, actually, challenged to—decide which "facts" appear to fit together, which of the three consultants contributed each "fact," and which conclusions the "facts" support.



Corrosion at rigging point

The Challenge

The tables below present the observations reported by Arnie, Buck, and Chuck, even though none of the individual observations in the table have been attributed to a specific consultant. In fact, after the tables were compiled, the statements were scrambled, then sorted, so that similar subjects were grouped together.

Can you determine which consultant reported which observation? Space has been provided to assign each fact observation to a consultant.

Be advised that you may see information repeated since some of the observations or results presented may have been reported by one, two, or all three of our consultants. While some findings may appear to be contradictory, you should note that the examinations were not necessarily performed in exactly the same spot, and any identified deficiency might have more than one cause and occur at more than one location.

Table 2: Findings from General Visual Examinations

	Comment Attributed to Consultant
Rust stain and rust were seen on the surface of the coating where slivers of steel were found.	_____
Rusting above the lower beam flanges is minimal in some areas and non-existent in others.	_____
Abrasive imbedded in coating, pinpoint rust, rust stain.	_____
The lower steel surfaces exposed to more aggressive service (water, salts, solids) are starting to corrode.	_____
Spot rusting on underside of lower beam bottom flanges.	_____
Intermittent minor rusting is occurring on the edges and underside of bottom flanges and bottom of horizontal structural members and bottom of diagonal connections at beams.	_____
Rusting was observed on the ends of a few bracing diagonals and flange edges. One beam in particular had heavier rusting than all the others viewed.	_____
Rusting is occurring at openings between bottom flanges of connected beams.	_____
Rust stain, rust observed on bottom of laterals and bottom flanges at [probable] end of containment framing.	_____
Underside of lower members, bottom beam flanges have rust spots from previously pitted, chloride-contaminated steel.	_____
The coating appeared to be in good condition, less than 20% requiring spot repair.	_____
Pinpoint and spot rust along saw cut steel flange edges. [0.3% to 3%]	_____
Some horizontal surfaces had accumulations of dirt and dusts from the surrounding service environment.	_____
Locations where containment tarps were attached were not always properly repaired.	_____
Rust was observed along some containment edges and rigging attachments.	_____
Locations where rigging was attached were not always properly repaired.	_____
Bottom bolted connection plates exhibit minor rusting on bolt threads.	_____

Table 3: Dry Film Thickness

	Comment Attributed to Consultant
There are individual coats outside the specification limits.	_____
Surfaces have too much paint.	_____
There were surfaces missing one or two coats.	_____
The film thickness was two mils below the minimum specified where rust through the film was observed.	_____
All three coats were present but each below its required thickness.	_____
Surfaces have too little paint.	_____
Film thickness readings were within the acceptable range.	_____
Based on a review of the total dry film thickness data, most measurements were acceptable.	_____
Three coating layers were present at every location examined. Individual coat thickness indicated substantial specification compliance.	_____
98.3% of the dry film thickness readings were within the specification limits. 1.7% exceeded the upper limit.	_____
Generally, coating thickness was in accordance with the specification requirements.	_____
Measurement sites in each area are randomly selected.	_____
Tooke gage readings were taken to verify the gage readings.	_____
The gage was set to the manufacturer's default settings.	_____
Dry spray represents a major problem.	_____

Background

An owner had a bridge constructed of structural steel that had been painted many years ago with red lead paint. The corrosion (rusting) was so extensive that the owner decided to remove the old coating system, including rust and mill scale, and repaint the bridge with a new, durable coating system.

The service environment was predominantly atmospheric but subject to moderate splashing with fresh and salt water, often containing solids. The owner reported that the design and pattern of splashing caused a greater degree of corrosion to develop on the lower elevations (splash zone) than on the upper two-thirds of the girders. Specifications were provided for bidding purposes and included references to project plan notes. The plan notes are typically used to address specific painting requirements at different locations on the structures if necessary. However, no project plan notes were distributed for the work on the bridge. The project surface preparation and coating requirements are summarized in Table 1 (p. 11).

A contract was awarded and the coating work was completed over two painting seasons, with 80% of the structure finished the first season and the final 20% completed over the second painting season. Several years after the work was completed, corrosion was found. Based on an anticipated service life of about 18 to 20 years for the coating system, the owner became concerned and engaged a consultant to determine why the corrosion was recurring after only about six years.

Cracked thick coating overrust

Consultant A, Arnie, decided that the most appropriate way to determine why the premature corrosion was occurring was to review the quality of work performed. Arnie examined the overall structure and used a random process to select locations (sites) for detailed examination of the coating, corrosion, and substrate. Arnie also took non-destructive and destructive thickness measurements of the coating system.

Learning of the owner's concerns about the premature rusting, the coating contractor also took steps to determine why the coating seemed to be failing so soon in its service life. Approximately two months after Arnie's examinations/inspections, the contractor, who believed the work was exactly what the owner asked for, hired Buck (Consultant B) to judge if the quality of his work was consistent with the specification requirements.

Arnie and Buck looked at the same structure, the same coatings, and essentially the same locations. Nevertheless, Arnie and Buck presented different opinions regarding the corrosion problem. The divergence of opinions could not be resolved, and an investigation was needed. Nearly a year later, Chuck (Consultant C), engaged by an interested third party, inspected the structure, and he determined its condition based on his own observations and data as well as on

Continued

Table 4: Close Inspection and Substrate Examination

	Comment Attributed to Consultant
Steel abrasive particles were imbedded in coating, sometimes in the topcoat and sometimes in intermediate-primer layers which showed rusting.	_____
A minor number of bolts did not have all sides uniformly coated.	_____
Pinpoint rusting was found where some steel abrasive was painted over.	_____
There were several very minor areas where steel abrasive was imbedded in the paint.	_____
No evidence of coating delamination due to dry spray was observed.	_____
Many bolted splice plates were not properly blasted as old paint and rust were present on and behind some bolt heads.	_____
Many of the tight corners and vertical plates in the last portion of the structure prepared and coated were poorly blast cleaned.	_____
Small spots of old coating were visible through the newer coating system, typically <2% when clustered, <0.3 % when isolated individual spots were noted.	_____
The last portion of the structure prepared and coated (second painting season) appeared to have the poorest degree of blast cleaning.	_____
Several locations were identified where rigging appears to have interfered with abrasive blast cleaning surface preparation.	_____
Pin point rusting was found around steel fins and slivers.	_____
Surfaces that were previously corroded [pitted] are re-rusting in the same spots.	_____
An area was noted that appeared to have been touch-up where pinpoint rust was visible.	_____
Bottom edges of cross members close to flanges had rust and rust stain.	_____
Several areas of rusting were observed and [later] found to be associated with low film thickness.	_____
Examinations in the last section painted (season 2) found rust and pack-rust that was painted over and residual mill scale.	_____
There were streaks of old paint found and flecks of rust on edges and in corners where the [new] paint was stripped. These covered a few percent of the exposed surface area.	_____
Some of the new paint remained on some rough surfaces after stripping and the degree of staining was not always easily determined.	_____
Chipping away intact coating revealed spots of old paint and rust under the five-six year-old coating system.	_____
Stripped surfaces that appear to meet the surface cleanliness requirement did have rust spots which were visible under magnification.	_____
Two of three locations in the same area where coating was chemical stripped to the substrate were properly prepared. One had more than 5% staining.	_____
No old primer, rust or mill scale was found to be present under the coating at randomly selected areas that were chemically stripped.	_____
Several locations on a beam had rust and red-orange old paint under the new paint.	_____
Three locations in an area where coating was chemical stripped to the substrate were properly prepared except that a small rust spot was present where a steel surface flaw was present.	_____
Three of three locations in [another] area where coating was chemical stripped to the substrate were properly prepared.	_____
Old paint, rust and/or mill scale was found under the coating in over 60% of the chemically stripped surfaces.	_____
A stripped surface contained small pits that did not appear to have been blast cleaned. Stains of mill scale were also present at more than 5%.	_____
Over 60 µg/cm^2 chloride was measured on a companion structure not yet scheduled for painting.	_____
Overly thick, cracked coating in tight corners.	_____
Stripped areas were selected at random.	_____
Not all of the locations chosen for chemical stripping were selected randomly.	_____
The distribution of poorly blast cleaned surfaces was not random.	_____
Extra coats of paint [e.g., stripe] coat were not present (or required).	_____

Table 5: Summary of Conclusions

	Comment Attributed to Consultant
Preparation of the surface and application of the coating are in substantial compliance with the specification.	_____
The defects observed are a small percentage of the surface area and are normally handled as one-year anniversary repairs.	_____
The inspection process involves examination of only portions of the work. Defects are present but it is possible that the owner trained inspector may have missed them given the conditions under which the work was performed.	_____
The structure remains protected by the coating five to six years after application.	_____
The condition of the structure is good after five to six years' service where chloride contamination is present.	_____
There are major deficiencies of such quantity and distribution that re-blasting and repainting is the only reasonable repair.	_____
Additional requirements in the specification would have improved the quality of the coating application.	_____
The coatings need not be removed and replaced to attain the designed service life of 18 to 20 years based on the extent of defects observed. Even coating touch-up repairs can be postponed for several years.	_____
None of the structure surfaces were painted in accordance with the specifications.	_____

the reports of Arnie and Buck.

The three consultants reviewed the requirements, and it was noted that a couple of potentially important activities were not included. These are also indicated in Table 1.

The author of this article reviewed the reports from each consultant. Arnie, Buck, and Chuck presented their opinions regarding the quality of work performed and what, if any, corrective action might be required to address the corrosion issues facing the owner.

Field Investigations

Each of the consultants had the opportunity to examine the condition of the coating system on the structure. Buck and Chuck, the second and third consultants, had the opportunity to see where the previous examinations were conducted by the first consultant, Arnie. In turn, Arnie, the first consultant, was asked by his client to observe the work of Buck and Chuck.

Consultant Examinations and Findings

General visual examinations were performed over the coated surfaces of the structure from the ground. The distribution of rust, rust stain, dirt, etc. was described. Table 2 (p. 12) summarizes

Flange edge corrosion

comments made by consultants 1, 2, and 3 (Arnie, Buck, and Chuck) regarding the general visual examinations.

More detailed examinations were performed on randomly selected surfaces accessible from the ground or by lifts. Information was reported regarding the appearance of specific surfaces, conditions contributing to rusting, rust stain, debris, coating defects, and discussions of their significance. Access also permitted physical tests and measurements to be performed.

All three consultants reported coating system thickness that was measured non-destructively using Type 2 electronic thickness gages and destructively by using Tooke gages, which permitted examination of individual coating layers. Table 3 (p. 13) summarizes comments made or results obtained by consultants Arnie, Buck, and Chuck regarding the dry film thickness.

The condition of the substrate was evaluated at locations where most of the existing coating system was removed by grinding to very near the substrate surface and then completely removed by chemical stripping and solvent cleaning. The substrate could thus be examined for evidence of abrasive blast cleaned steel, or the presence of rust, old paint, and/or mill scale. Table 4 (p. 14) summarizes comments made by the three consultants regarding the close inspection and substrate examination.

Summary of Conclusions

Each of the conclusions provided in Table 5 above was contained in at least one of the three consultants' reports. Review the "fact" observations to see if you can determine what conclusion was reached by what consultant.

- Are the conclusions reached by the consultants supported by the information above?
- What, if any, information is missing?
- What should be done to address the corrosion that has developed?

Join me for Part 2 in the next F-Files.

Abrasive Blasting: Achieving Efficiency and Profitability

By Patti Roman, Clemco Industries

Abrasive blasting has been important for cleaning and preparing surfaces for coating for many decades. It uses compressed air to propel abrasive particles at high speed to a coated or uncoated surface. While abrasive blasting is technologically simple, safely converting abrasive particles and compressed air into an effective treatment takes planning and preparation, properly engineered tools and equipment, and operator skill as well as good judgment.

Fig. 1: Effective and safe abrasive blasting requires the correct equipment and setup as well as a properly trained operator. All figures and tables are courtesy of Clemco Industries.

Planning and Preparation

An important first step calls for a thorough examination of the surface to be blasted and the environment surrounding the object or structure, as well as knowledge of job requirements, such as the degree of cleanliness (for example, SSPC-SP 10/NACE No. 2, Near-White) specified for the coating application. A job hazard analysis will aid in project planning by identifying in advance the critical issues (such as removing lead-bearing paint) to be addressed with equipment and personnel.

Properly Engineered Tools and Equipment

For high production blasting, selecting properly sized equipment and compatible components and accessories will ensure an efficient operation and successful outcome (Fig. 1). Tips on making the best choices follow.

• **Air Compressor**—properly sized to produce sufficient air volume and pressure required for all equipment it will serve

Table 1: Approximate Pressure Loss Caused by Common Fittings*

Fitting	Pressure Loss	
45° pipe elbow	1-1/2 psi	0.1 bar/10 kPa
90° pipe elbow	3 psi	0.2 bar/21 kPa
pipe tree	5 psi	0.3 bar/34 kPA
swing check valve	18 psi	1.2 bar/124 kPa

*based on 100 psi (7 bar) in 1 inch (25 mm) pipe

The compressor is both the energy source and the workhorse of the blasting system. Compressed air is needed to pressurize the blast machine, convey abrasive to the nozzle, operate valves and accessories, and provide breathing air. Blasting requires a steady supply of air of high-pressure (psi) and high-volume (cfm), and purity when used for breathing air.

To determine the compressor size needed, add the requirements of all equipment, plus a 50 percent reserve to keep productivity high as the nozzle wears. The smallest internal diameter (ID) of the compressor air outlet should be at least four times the size of the nozzle orifice or larger.

• **Nozzle**—matched to compressor output and necessary reserve

Nozzles accelerate abrasive into a highly effective cutting force to tackle the toughest of applications. Replace the nozzle when its orifice is worn to

Continued

1/16-inch (1.5 mm) larger than its original size. A worn nozzle not only wastes air but also may lower productivity or cause injury if the liner fails. Carbide nozzles—tungsten, silicon, and boron—are most popular for the majority of blasting applications because of their long life.

• **Air Line**—as large as possible, with unrestrictive fittings

Using a properly sized air line is critical to getting the most from your compressor and blast system. Like the compressor air outlet, the air line ID should be at least four times the nozzle orifice size. This principle applies to air lines up to 100 feet. With longer hoses, especially those exceeding 200 feet (60 meters), check the air pressure at the blast machine while blasting to determine if air hose ID is sufficient. Air flows best through unrestricted fittings and straight air lines, so lines should be laid out in as short a length and with as few bends as possible to reduce pressure loss (Table 1). Use an air hose rated for a minimum working pressure rating equal to or greater than the blast machine's working pressure.

• **Filter, Moisture Separator, and Air Dryer**—eliminate troublesome abrasive stoppages caused by water in the air line

Fig. 2: Needle pressure gauge used to check pressure at the nozzle.

Water and oil are enemies of blast equipment. All compressors release moisture as a byproduct of compressing air, but some also contaminate the air with oil. The tools for removing moisture and oil vary, depending on the relative humidity in the ambient air. An air filter, installed at the blast machine's air inlet, removes oil and water that has already condensed in the air lines. Coalescing filters collect some water vapors that form small droplets. Aftercoolers cool the air to condense the moisture, then trap it before it is carried to the blast machine. Air dryers are most effective for removing moisture and oil.

• **Blast Machine**—with capacity, valves, and piping for high production

Based on your compressor and nozzle, choose a blast machine with an abrasive capacity of 20 to 30 minutes of steady blasting. Consult an air/abrasive consumption table (e.g., Table 2) for the amount of abrasive to be consumed by the nozzle orifice size at a given pressure. For example, a No. 6 nozzle (3/8-inch orifice) at 100 psi will

consume 1,152 pounds of expendable abrasive per hour (with abrasive weighing 100 lb per cubic foot). Choosing a 6-cubic foot capacity blast machine will provide approximately 30 minutes of blasting (1,152 divided by 2 equals 576).

Air and media flow through pipes, valves, hoses, nozzles, and couplings that are all cylindrical. Any reduction in the diameters of these cylinders dramatically reduces the rate of flow. A one-inch ID cylinder has an area of 0.80 square inches. A ½-inch ID cylinder has an area of 0.20 square inches. Reducing the diameter of the cylinder by half reduces its area three-fourths. Pay special attention to the blast machine's external plumbing, because this is where restrictions usually occur.

A well-engineered blast machine allows smooth air and abrasive flow throughout the system. An industrial-quality blast machine features a concave head for easy filling and seals automatically with a pop-up valve—a cone-shaped casting coated for wear resistance. Most machines have a 35-degree conical bottom to allow abrasive to flow freely to the metering valve. Make sure the pressure vessel has National Board approval, an indication that it meets the American Society of Mechanical Engineers' (ASME) specifications.

Install a screen to keep out debris that otherwise would find its way into the blast machine. Cover the machine when it's not in use to keep out rain and condensation.

• **Pressure Regulator and Gauge**—for adjustment and monitoring

Install a pressure regulator with a gauge on the blast machine to set and monitor the air pressure. Maintaining operating pressure guarantees optimum performance. Use a hypodermic needle gauge to check pressure at the nozzle (Fig. 2).

• **Abrasive Metering Valve**—engi-

Continued

neered for steady, uniform flow

Abrasive flows by gravity through the metering valve into a fast-flowing stream of compressed air. Metering valves that feed abrasive at 90 degrees cause turbulence, which leads to erratic abrasive flow, abnormal wear on piping, and inaccurate mixing of air and abrasive. Feeding abrasive into the air stream at 45 degrees allows air and abrasive to blend smoothly. A good abrasive metering valve permits precise adjustments. Air valves, and other valves not specifically designed for abrasive will wear rapidly and adversely affect flow.

Table 2: Compressed Air and Abrasive Consumption*

Nozzle Orifice	Pressure at the Nozzle (psi) 50	60	70	80	90	100	125	150	
No. 2 (1/8")	11	13	18	17	18.5	20	25	30	Air (cfm)
	.67	.77	.88	1.01	1.12	1.23	1.52	1.82	Abrasive (cu.ft./hr
	67	77	88	101	112	123	152	182	& Lbs/hr)
	2.5	3	3.5	4	4.5	5	5.5	6.6	Compressor hp
No. 3 (3/16")	26	30	33	38	41	45	55	66	Air (cfm)
	1.50	1.71	1.96	2.16	2.38	2.64	3.19	3.83	Abrasive (cu.ft./hr
	150	171	196	216	238	264	319	383	& Lbs/hr)
	6	7	8	9	10	10	12	14	Compressor hp
No. 4 (1/4")	47	54	61	68	74	81	98	118	Air (cfm)
	2.68	3.12	3.54	4.08	4.48	4.94	6.08	7.30	Abrasive (cu.ft./hr
	268	312	354	408	448	494	608	730	& Lbs/hr)
	11	12	14	16	17	18	22	26	Compressor hp
No. 5 (5/16")	77	89	101	113	126	137	168	202	Air (cfm)
	4.68	5.34	6.04	6.72	7.40	8.12	9.82	1.178	Abrasive (cu.ft./hr
	468	534	604	672	740	812	982	1,178	& Lbs/hr)
	18	20	23	26	28	31	37	44	Compressor hp
No. 6 (3/8")	108	126	143	161	173	196	237	284	Air (cfm)
	6.68	7.64	8.64	9.60	10.52	11.52	13.93	1.672	Abrasive (cu.ft./hr
	668	764	864	960	1,052	1,152	1,393	1,672	& Lbs/hr)
	24	28	32	36	39	44	52	62	Compressor hp
No. 7 (7/16")	147	170	194	217	240	254	314	377	Air (cfm)
	8.96	10.32	11.76	13.12	14.48	15.84	19.31	2.317	Abrasive (cu.ft./hr
	896	1,032	1,176	1,312	1,448	1,584	1,931	2,317	& Lbs/hr)
	33	38	44	49	54	57	69	83	Compressor hp
No. 8 (1/2")	195	224	252	280	309	338	409	491	Air (cfm)
	11.60	13.36	15.12	16.80	18.56	20.24	24.59	2.951	Abrasive (cu.ft./hr
	1,160	1,336	1,512	1,680	1,856	2,024	2,459	2,951	& Lbs/hr)
	40	50	56	63	69	75	90	108	Compressor hp

**Consumption rates are based on abrasives that weigh 100 pounds per cubic foot.*
• For nozzle sizes 6, 7, & 8, machines should be equipped with 1 ¼" ID or larger piping and inlet valves to minimize pressure loss.
• Air requirements measured by a flow meter during blasting; figures are lower than for air alone.
• Compressor (hp) based upon 4.5 cfm per horsepower.
• Table data are for reference only; will vary based on different conditions. Variables such as metering valve adjustment affect abrasive flow.

• **Remote Controls**—for safe and efficient operation

A blast machine must have remote controls (an OSHA requirement) that quickly stop blasting when the control handle is released. They are critical to preventing injury should the operator lose control of the nozzle. Pneumatic remotes work well at distances up to 100 feet. Electric remotes are recommended for distances greater than 100 feet and are mandatory for distances of 200 feet or more.

• **Blast Hose and Couplings**—sized to reduce friction loss

Always use appropriately sized, good quality static-dissipating blast hose, manufactured for abrasive blasting and rated at the appropriate working pressure. The blast hose ID should be at least 3 times (preferably 4 times) the size of the nozzle orifice.

Choose couplings and holders based on their suitability for job site conditions—not on their purchase price. Blast hose couplings lock together. Under pressure, the blast hose expands against the couplings to create an airtight seal. Gaskets in each coupling align and compress as the couplings are twisted into the locked position. Make sure the coupling screws are long enough to provide sufficient holding power without penetrating the inner tube. Some couplings have integral steel safety cotter pins; if yours do not, always install safety cotter pins to further secure the coupling connection. Blast hose safety cables provide an additional measure of protection and should be used at every coupling connection to prevent injury from accidental coupling disengagement.

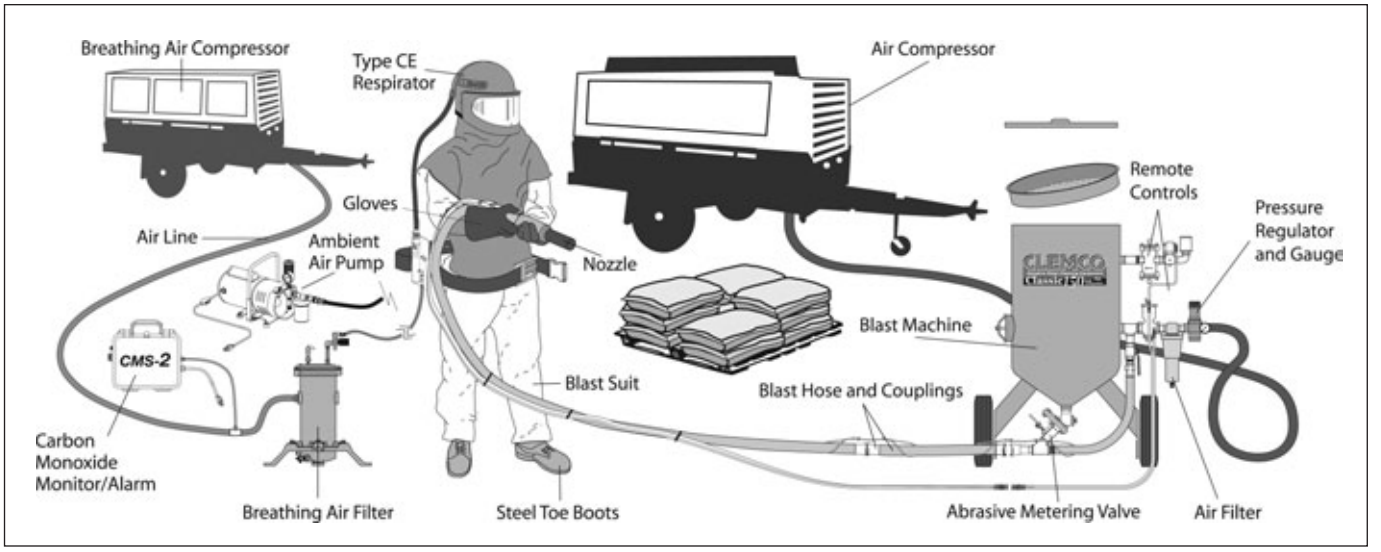


Fig. 3: Basics of proper setup for abrasive blasting

• **Operator Safety Equipment**—protective clothing and NIOSH-approved respiratory protection for blasters and all personnel working in the vicinity of blasting—no dust is safe to breathe!

To prevent injury and illness, personal protective equipment (PPE) is absolutely necessary for blasters and everyone in the work area. OSHA enforces regulations pertaining to safe abrasive blasting. Respirators used for blasting must be tested and approved by the National Institute for Occupational Safety and Health

Continued

(NIOSH). Make sure to choose an air-fed helmet that not only furnishes breathing air but also protects the head and face from rebounding abrasive and from impacts; muffles noise; and allows an unobstructed field of vision. OSHA regulations dictate that noise levels generated by the respirator at maximum air flow and measured inside an air-fed helmet not exceed 80 decibels. Make sure to use approved components and spares to preserve NIOSH approval.

• **Carbon Monoxide Alarms**—protect workers from carbon monoxide

Protecting workers from exposure to carbon monoxide (CO), a colorless, odorless, deadly gas, is easy with the installation of a CO monitor/alarm. This device prevents operator exposure to carbon monoxide by providing an audible and visual signal when unsafe CO levels are detected. CO can be produced by oil-lubricated compressors or by motor or engine exhaust that enters the intake of a compressor or ambient air pump. Always service the compressor at the recommended intervals, and install high-temperature shutdown devices or carbon monoxide alarms, or both.

Skill and Good Judgment

• **Operator**—experienced, knowledgeable, and trained

High-production, quality equipment is no guarantee to an efficient operation. An essential element in a successful blast operation is a properly trained operator. Blasting can be dangerous for the poorly trained or poorly equipped operator. OSHA regulations state that employers are responsible for training and supplying all necessary protective clothing and equipment.

• **Safety Program**—set up by employer

Employers must also establish a safety program and ensure their workers follow safe practices on every job.

Conclusion

For the best outcome, follow the rules for equipment setup and component compatibility, and equip your operators with knowledge and the best in safety and comfort equipment (Fig. 3). A few simple steps can make the difference between risks to workers and an unprofitable job on the one hand and a safe, effective, productive, and profitable abrasive blasting job on the other.

Patti Roman is vice president of marketing for Clemco Industries Corp. She has been in the industry for more than 30 years and has held various sales- and marketing-related positions. She received a master's degree in international business from St. Louis University. She has written articles for *JPCL* and other industry publications.

The Story of a Tankage Project that Could Fill Volumes

Despite Alberta's cold and wet weather, operational interruptions, and revised specs as well as revisions to the project timeline, a Canadian contractor completed what is to date the country's largest tank coatings project, and the contractor did so ahead of schedule and with no lost time accidents in 153,000 hours. The project was undertaken for Calgary-based oil storage and distributor Enbridge, which moves approximately two-thirds of Canada's oil, about two million barrels a day. Coating and lining of the Enbridge Hardisty Contract Tankage Project began in July 2008 and was completed in September 2010.

The project called for internal linings and external coatings for the shells and roofs of 19 new merchant tanks that Enbridge added to its existing tank main-line operation in Hardisty, Alberta. With the largest of the tanks capable of holding 530,000 barrels of oil, the 19 new tanks can contain a combined volume of 7.5 million barrels of oil, enough, according to Enbridge, to fill 48,000 Olympic-sized swimming pools. The coating and lining project was undertaken for oil vapor emission reduction, corrosion prevention, and aesthetics.

Safety challenges were prominent. The floating roofs and internal floors were determined to be permit-required confined spaces, the contractor said. All workers were required to have confined space and H_2S Alive—training about hazards of working in environments where hydrogen sulfide might be present and training in rescue operations if needed in such environments. (H_2S Alive was required of all crews because Enbridge started filling tanks once they were completed. Most of the external shell was coated when the tanks were in service.) The covered tanks met the criteria for permit-required confined spaces. The roof work also required confined space training and H_2S Alive because the crews' main means of access and egress for the roof work was through openings in the floating roofs of the tanks, noted Ken Carriere, the contractor's coatings division field operations manager. Crews working on the externals of the tanks—walls and floating roofs—also needed manlift training. In addition, the contractor ran day and night shifts.

Roof crews also had to contend with rain, wind, and snow in the winter, to the point of shoveling snow from the roof before blasting and priming, the contractor noted. Once the snow was shoveled, the roofs needed to be warm and dry enough for blasting and painting. The tank interior was heated with up to 13 million BTUs of heat, Carriere said. Pumped

Continued

Below: The coating and lining began in July 2008 when 19 tanks were added to Enbridge's existing main-line operation in Hardisty, Alberta, making the Enbridge Hardisty Contract Tankage Project the largest tank coating and lining job in Canada to date.
Right: Overview of the expanded tank main-line operation after the project was completed ahead of schedule, in September 2010. (Dark spots on some tank roofs are either from windblown sand from the surrounding area or minor algae growth.)
Photos courtesy of Enbridge

internally and radiated up through the roof, the heat increased the temperature of the roof exterior by as much as 20 degrees Celsius, enough to dry and warm the roof exteriors for blasting and painting.

The specs themselves were straightforward enough. The abrasive blasting crews prepared the floating roofs to an SSPC-SP 6, Commercial Blast, with a surface profile of 2 to 3 mils. The contractor used copper slag and then nickel slag, both of which were specified, but later, with Enbridge's approval, switched to staurolite for productivity advantages, according to Carriere. Paint crews applied a three-coat system of an epoxy primer (4-6 mils), an epoxy intermediate (4-6 mils), and a urethane finish coat (1.5 to 2.5 mils).

Worker spray painting roof
Courtesy of Park Derochie Coatings Ltd.

A third-party inspection firm that Enbridge hired inspected the blast cleaning before crews began to apply the coating. During application, each coat was checked for defects and for its compliance with the specified coating thickness. Once the system was fully applied, the third-party inspector and the contractor's own NACE-certified staff did a final inspection of the entire system.

In addition to requiring confined space training, the tank floors brought other challenges. Because of rain, cold, and humidity, heaters and dehumidifiers were needed to control the environment inside the tank to maintain the correct ambient conditions for blasting and coating. An SSPC-SP 5, White Metal Blast, with a 3- to 4-mil profile, was specified for the internal floor and first 30 in. above the floor of each tank; one coat of a 100% solids epoxy lining was specified at 30 mils, said Carriere. Above the 30-inch point, the internal

Tank interior
Courtesy of Park Derochie Coatings Ltd.

walls were not coated.

Once each floor was blast-cleaned, a third-party inspector verified that the surface preparation met the spec. The coating crew then stripe-coated welds and edges before applying the 100% solids epoxy lining by plural-component spray. The contractor's NACE-certified inspector and the facility owner's third-party inspector conducted holiday detection testing and final inspection of each lining.

The new tanks, with coatings and linings performing well
Courtesy of Enbridge

For the external shells of the tanks, Enbridge's specification allowed either brush blasting or high-pressure water washing at least 10,000 psi to remove all loose rust and mill scale, according to Carriere. No profile was specified. The contractor chose water washing to ensure that the surface would be free of dust contamination as well as loose rust and mill scale, Carriere added. Third-party inspection verified that the surface preparation spec had been met. The crew then spray-applied a direct-to-metal acrylic primer at 3 mils' dft. The contractor checked the primer for defects and proper thickness. After the contractor approved the primer, the crew applied a direct-to-metal acrylic finish, also at 3 mils' dft. (The primer and finish coat were different products but could be applied 'direct to metal.' The primer had extra rust inhibitors.) The contractor checked the finish coat for defects and thickness, also. The contractor and the third-party inspector conducted a final inspection of the completely applied system.

The roofs, coated first, show no rust after two years. The tank exteriors show no rust after one year. With the job completed in September 2010, the tanks are now in service.

The contractor was Edmonton, Alberta-based Park Derochie Coatings Ltd., which is certified to SSPC-QP 1, QP 3, and QP 6. Enbridge's third-party inspection team was from Colts Inspection Ltd. (Sherwood Park, AB). Sherwin-Williams (Cleveland, OH) manufactured the systems for the roofs and tank externals. Enviroline (International Paint) manufactured the linings for the tank floors.

From Park Derochie Coatings Ltd. and Enbridge

Where have all the paint companies gone?
Long time passing
Where have all the paint companies gone?
Long time ago
(With apologies to Pete Seeger)

Where have all the paint companies gone?

By Brian Goldie, *JPCL*

The paint industry is shrinking in terms of the number of players, with the large multinational companies buying up the more specialized or regional companies to complement their portfolios. While this could be seen as a negative move as far as the customer is concerned, it does allow smaller companies to operate in niche markets and therefore offer the customer a better service.

This article covers acquisitions known to *JPCL* that have taken place since our last report (2003), restricted to our market sectors, and primarily covering North America and Europe.

2010

Tnemec Co. Inc. (Kansas City, MO) purchased Glass Armor's 100% solids thick-film lining technology from Bridgeport Chemical (Sikeston, MO) and will market the technology under the new name Tank Armor.

The Sherwin-Williams Company (Cleveland, OH) completed its fifth acquisition in just over two years, closing a $227 million agreement to purchase Becker Industrial Products AB (Lyon Cedex, France). Becker Acroma will be part of Sherwin-Williams' rapidly growing Global Finishes Group, which supplies liquid and powder product finishes for the world OEM market.

Dayton Superior Corp. (Dayton, OH) acquired the assets of Unitex Chemicals (Kansas City, MO), manufacturer of products for industrial concrete construction and repair, and completed its acquisition of bankrupt Universal Building Products.

Industrial paint companies **Teknos** and **Oliva** have teamed up to become a major force in the Polish metal paint market. The companies signed an agreement Aug. 23 to form the Teknos-Oliva brand.

Huber Engineered Materials, a division of J.M. Huber Corp. (Atlanta, GA), acquired the Kemgard® flame-retardant and smoke-suppressant business of The Sherwin-Williams Company.

RPM International Inc.'s Tremco Inc. subsidiary signed a definitive purchase agreement to acquire Illbruck Sealant Systems, a Germany-based manufacturer of high-performance sealant and installation systems. RPM International is headquartered in Medina, OH.

RPM International Inc.'s Performance Coatings Group acquired Hummervoll Industribelegg AS, a supplier and installer of industrial flooring systems based in Bergen, Norway.

RPM International Inc. acquired the Universal Sealants (U.K.) Limited group of companies, a United Kingdom-based supplier of coatings and construction products and services for bridges and other large infrastructure projects.

RPM International Inc.'s Rust-Oleum Corp. subsidiary has acquired Chemtec Chemicals BV, a manufacturer of industrial cleaners and specialty coatings based in The Netherlands.

RPM International Inc.'s RPM Belgium Group acquired Berlin-based Hermeta Chemie GmbH, wich makes polyurethane and epoxy-based coating systems sold primarily in Germany, Poland, and Switzerland.

The Valspar Corp. (Minneapolis, MN) acquired Australian paint manufacturer Wattyl Ltd., a major supplier of products for consumer and professional paint and coatings products in Australia.

Chase Corporation (Bridgewater, MA) acquired the full range of ServiWrap® pipeline protection products from Grace Construction Products (Cambridge, MA), a unit of W.R. Grace & Co.

2009

California Products Corp., an Apollo Capital Management portfolio company headquartered in Andover, MA, acquired the customer base and certain assets of Progress Paint Manufacturing Co. (Louisville, KY). The acquisition includes certain Progress Paint brands and product lines, including Gray Seal®, Fixall®, Duralux®, Marine, and other associated lines.

Freeworld Coatings Global (Paulshof, South Africa) acquired the North American operations of Napier Environmental Technologies Inc. of Vancouver, Canada.

Sika AG (Baar, Switzerland) acquired Iotech Group Ltd. (England), a manufacturer of polyurethane liquid membranes for roofing and waterproofing and parent company of U.S.-based Liquid Plastics Inc.

AkzoNobel (Amsterdam, the Netherlands) acquired the 25% minority shareholding from Nippon Paint (Osaka, Japan) in the joint venture company AkzoNobel Nippon Paint Holding B.V. AkzoNobel now has 100% shareholding in the company, allowing a merger of the company and its subsidiaries into the AkzoNobel group.

2008

The Sherwin-Williams Company (Cleveland, OH) closed an agreement to acquire Euronavy-Tintas Maritimas e Industriais S.A. of Portugal.

Coverdale Paint Inc. (Surrey, British Columbia) acquired the assets of Guertin Coatings, Sealants & Polymers Ltd. (Winnipeg, Manitoba).

Hempel A/S reached an agreement to acquire all shares of Hempel-Hai Hong in China. Increasing its share in Hempel-Hai Hong from 36% to 100% will give Hempel A/S full control of its activities in China. Hempel A/S is part of the Hempel Group (Kgs. Lyngby, Denmark).

Mapei S.p.A completed the acquisition of Polyglass USA Inc., a manufacturer of roofing systems and roof coatings. Mapei, based in Milan, Italy, is a privately held, international manufacturer of specialized building materials.

AkzoNobel (Amsterdam, the Netherlands) acquired two U.S.-based companies, Lord Corporation (Cary, NC), a floor coatings business, and Soliant LLC (Lancaster, SC), manufacturer of durable paint and bright films.

AkzoNobel acquired Enviroline (Pompano Beach, FL).

AkzoNobel N.V. officially completed its $16.2 billion acquisition of Imperial Chemical Industries PLC (ICI) and its two premium brands Glidden and Dulux as well as Devoe High Performance Coatings. The deal followed months of negotiations between the two companies and approvals from EU, Canadian, and U.S. regulatory authorities.

PPG Industries (Pittsburgh, PA) acquired Vanex, Inc. in Mount Vernon, IL. Founded in 1964, privately-held Vanex is a supplier of Plascron® and Breakthrough® brand waterborne industrial coatings for use on metal, plastic, and wood in the structural steel, building systems, construction, and fabricated metals industries.

PPG Industries completed its $3.2 billion acquisition of the Netherlands-based SigmaKalon Group, from global private investment firm Bain Capital.

RPM International Inc. (Medina, OH) acquired Flowcrete Group, a manufacturer and marketer of resin flooring systems for industrial and commercial applications. Flowcrete was founded in 1982 and is headquartered near Manchester, England.

Sika AG's U.S. subsidiary, Sika Corp. (Lyndhurst, NJ) acquired the commercial and industrial polymer flooring business of The Valspar Corp. (Minneapolis, MN).

Sika AG's U.S. subsidiary, Sika Corp., acquired the commercial and industrial polymer flooring business of ICS Garland Inc. (Cleveland, OH), a producer of epoxy, polyurethane, and ESD materials.

Benjamin Moore & Co. (Montvale, NJ) announced its intent to purchase select assets and brands of Insl-x Products Corporation, a coatings manufacturer based in Stony Point, NY, including the Insl-X, Coronado, Bruning, Trinity Lacquers, and Lenmar labels.

Illinois Tool Works Inc. (ITW), headquartered in Glenview, IL, acquired PolySpec L.P. (Houston, TX), a manufacturer of protective coatings and linings, sealants, QPL/IMO-approved marine decking, and subsea insulation. PolySpec L.P. will be a wholly owned subsidiary of ITW and be part of the company's Performance Polymers and Fluids Division

Helios (Domzale, Slovenia) acquired Avrora, located in the Ukraine.

Rust-Oleum Corp.'s subsidiary, Tor Coatings Limited, acquired certain fire protection assets of Bollom Limited. The product range includes intumescent and fire-retardant coatings and varnishes sold primarily in the United Kingdom under the Fireshield, Intusteel, Fireguard, Flamebar, and Intuclear brands.

Where have all the paint companies gone?

2007

PPG Industries (Pittsburgh, PA) acquired certain assets of Coatings Resource Corporation (CRC), Huntington Beach, CA. CRC produces paints, lacquers, and varnishes for use on metal and wood industrial and consumer products.

PPG Industries acquired Champion Coatings (Houston, TX).

PPG Industries acquired the architectural and industrial coatings businesses of Renner Sayerlack, S.A., Gravatai, Brazil.

StonCor Group (Whitby, Ontario) acquired Norway-based Star Maling. Star Maling is a manufacturer and marketer of specialty coatings for industrial and offshore/marine applications in Scandinavia. It consists of three divisions: Star Maling, Carboline Marine, and Carboline Norge.

Carboline Company (St. Louis, MO) acquired the marine and industrial assets of Finnaren & Haley, a national supplier of marine, industrial, and architectural products, headquartered in Conshohocken, PA. Its marine and industrial coatings consist of a full line of new construction and maintenance coatings that are specified, sold, and applied to U.S. government vessels, tug boats, barges, workboats, and other shipyard customers/owners.

The Sherwin-Williams Company (Cleveland, OH) merged the Columbia Paint & Coatings Co. into its own operation.

The Sherwin-Williams Company acquired M A Bruder.

The KCH Group, Siershahn, Germany, announced that under the terms of a management buy-out scheme, the previous co-owner and managing director, Michael Weiss, has taken a majority interest, effective April 30, 2007. The vendor is Munich-based Adcuram Industriekapital AG.

Dow Polyurethanes (Midland, MI), a business group of The Dow Chemical Company (Dow), completed the acquisition of British Vita's polyurethane systems business, Hyperlast Limited. The Hyperlast acquisition includes elastomer systems enterprises in the UK and North America.

AkzoNobel (Amsterdam, the Netherlands) signed an agreement to acquire Ceilcote from Germany-based KCH Group for almost EUR 12 million. A major international brand used to coat concrete and steel structures, particularly in the petrochemical and power industries, Ceilcote specializes in high-performance, polymer-based corrosion control solutions for both new construction and maintenance projects.

RPM International (Medina, OH) subsidiary, Rust-Oleum Corporation, acquired Tor Coatings Limited, a manufacturer and marketer of specialty coatings in the United Kingdom. In addition to selling under its own brand, the Birtley, England-based Tor also sells under the Blackfriars, Holdtite, Solignum, Ratcliff, and Macroplex brands.

2006

RPM International Inc.'s wholly-owned subsidiary, Carboline Company, acquired certain assets of Nu-Chem (St. Louis, MO), an international provider of fireproofing products for protecting structural steel.

RPM International Inc.'s subsidiary, Rust-Oleum Corporation, acquired the Godalming, UK-based Watco Group. Watco has an 80-year history as a manufacturer and marketer of industrial coatings, as well as being a leading supplier of concrete floor coatings in the UK.

Chemline Inc. (St. Louis, MO) acquired the assets of Steelcote Manufacturing Incorporated, a manufacturer of high-performance epoxy and polyurethane coatings, also located in St. Louis, MO.

PPG Industries agreed to purchase the worldwide Performance Coatings & Finishes business ("Coatings") of Ameron International Corporation (Pasadena, CA).

Comex acquired Color Wheel Paint & Coatings (Orlando, FL).

AkzoNobel (Amsterdam, the Netherlands) signed an agreement to acquire Balakom a.s., a paint company based in Opava, Czech Republic.

2005

RPM International Inc. (Medina, OH) subsidiary, Carboline Company (St. Louis, MO), acquired Toronto, Canada-based AD Fire Protection Systems (AD Fire), an international provider of fireproofing products for the protection of structural steel.

2004

Tikkurila Oy, Finland, acquired a 51% stake in Kolorit Paints, the Ukraine.

The Sherwin-Williams Company (Cleveland, OH) completed its previously announced acquisitions of 100% of the stock of Duron, Inc.

Insl-X (Montvale, NJ) acquired Coronado and Lenmar from Wattyl (Baulkham Hills, New South Wales).

Baril Coatings BV, Hertogenbosch, the Netherlands, has taken over the activities of the Dutch company, Fortis Coatings, Veghel.

ITW Devcon (St. Louis, MO) acquired certain assets of Futura Coatings Inc. (St. Louis, MO), a producer of sprayable high-performance elastomeric coatings and linings. The business unit formed, ITW Devcon Futura Coatings, is part of ITW Performance Polymers, which is an international business group of Illinois Tool Works.

Send merger news to *JPCL*, kkapsanis@protectivecoatings.com.

JPCL

THE PSPC from an Owner's Point of View

by Carlos Augusto dos Reis Correia, Naval Architect,
PETROBRAS TRANSPORTE S.A.—TRANSPETRO, Rio de Janeiro, Brazil

The protection of sea water ballast tanks has been a problem for ship owners and operators for a long time. Even in the face of rising costs of maintenance and accidents, owners and classification societies have also taken a long time to recognize that the proper protection of the ballast tanks is essential for a vessel's lasting structural integrity.

In the middle of the 1950s, it was not common to paint the internal areas of ballast tanks, but rather to rely only on zinc sacrificial anodes for corrosion protection (Fig. 1). This system of protection was not completely satisfactory. The tanks were protected when filled with ballast water, but they were filled only about half of the time of a trip. During the other half, the environment in these tanks (humid air, damp surfaces, and salt) was ideal for corrosion of the unprotected steel. That situation became more critical on the upper parts of ballast tanks—bulkheads and under deck—because these areas were the last to be covered with sea water (when filling up the tanks—ballast operation) and the first to be in contact with air (deballast operation). Also, the shorter the voyage, the worse the protection. As a result, ballast tanks just became a graveyard of zinc anodes, resulting in no or little protection.

Due to that preoccupying scenario, the coating industry offered coating systems to protect the ballast tanks. Rudimentary in the beginning, the coating systems were continuously developed to create systems with very good performance, reaching today to coating systems with high performance.

This article charts one owner's involvement with corrosion protection inside ballast tanks, from the beginning of the1980s until the present day. It also considers the advantages and limitations of the latest industry standard for their protection.

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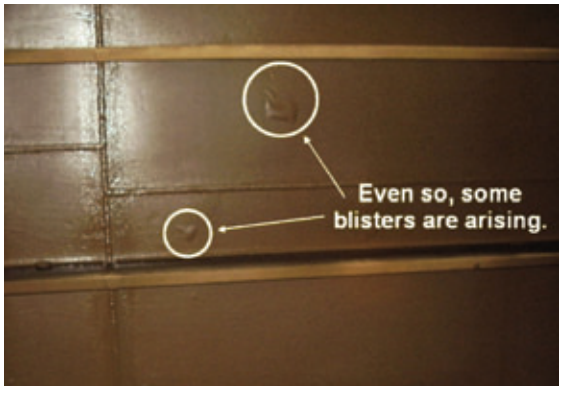
The Early Years

In the past, corrosion protection inside sea water ballast tanks was primitive. It has developed through the years, first as an attempt at protection with zinc anodes; next, by coating using "whitewash"; and later, by applying bituminous paint over a poorly prepared steel surface (less than St-2 standard or, at best, St-3).

By the 1970s, coal tar epoxy (CTE) coatings were starting to be used, a big

(Facing page): DPST Ataulfo Alves. In 2002, the bottom plating of all cargo tanks were UHP hydro-blasted and painted with 2 coats (150 µm each) of WST epoxy paint, in white color. Still today the coating looks brand new. All photos courtesy of the author.
Fig. 1 (above): Ballast tank of an old ship, not coated.
Fig. 2 (right): Ballast tank coated with CTE paint (18 years). Rare example of tank well coated and well maintained.
Fig. 3 (below): Mechanical treatment St-3 + two touchups (chipping + washing down w/ fresh water @ 3,000 psi + St-3 2 x 125 µm dft CTE paint)



step forward in protection. However, for good performance, the CTE had to be applied over a steel surface treated by abrasive blasting, minimum Sa 2, or better, Sa 2½ (similar to SSPC-SP 6, Commercial, or SSPC-SP 10, Near-White, respectively). On burned areas—mainly block butt weld joints—and other damaged areas, the treatment by power tools (i.e., St-3 standard) was the weakness of the system. For example, from 1975 to the end of 1977, two series of ore/oil ships (ships that can carry ore or oil) of 131,000 DWT were built by Ishikawajima do Brasil Estaleiros—ISHIBRAS, at IHI's shipyard in Rio de Janeiro. One series (three ships) were for PETROBRAS and the other (two ships) for another owner. The PETROBRAS's (FRONAPE) ships had all ballast tanks (FWD peak, AFT peak, and double-bottom tanks) abrasive blasted to Sa 2½ and coated with CTE (2 x 125 µm [approx. 5 mils] dft), whereas the two ships for the other owner had only the double-bottom tanks coated with the same CTE painting scheme—FWD and AFT peaks were whitewashed. On both series, the burned or mechanically damaged areas were treated to St-3. During the life of the five ships, despite all of them having many steel repairs at the mechanically treated areas (St-3), the three PETROBRAS' ships had significantly fewer steel repairs inside the ballast peak tanks than the other two ships.

From 1979 to 1983, three new series of ships for PETROBRAS (FRONAPE) were built.

- Four Very Large Crude Carriers (VLCCs), of 277,000 DWT each (ballast tanks: FWD peak, AFT peak, and 3B center tank)
- Eight Light Product Carriers, of 18,000 DWT each (ballast tanks: FWD Peak, AFT peak, and two rows of side ballast tanks)
- Six Ore/Oil Carriers (O/O), of 135,000 DWT each (ballast tanks: FWD Peak, AFT peak, double-bottom tanks, 3 port/starboard, and 6 port/starboard)

The first two series were built in ISHIBRAS shipyard (Rio de Janeiro—1979 to 1983), and the third series was built in VEROLME shipyard (Angra dos Reis, Brazil, 1979 to 1981). All ballast tanks were completely abrasive blasted to Sa 2½ and painted with the coal tar epoxy paint scheme (2 x 125 µm [approx. 5 mils] dft).

It was possible to find ballast tanks coated with the CTE painting scheme in excellent condition, even after 18 years of operation. But these tanks were the exception, not the rule. The secret was that these tanks were abrasive blasted and painted under a controlled atmosphere (temperature and humidity) immediately after each tank was constructed and after all steel works inside each tank had been approved (i.e., there was no mechanical treatment (St-3) carried out).

However, normally problems arose during the ships' lives. Some problems could be minor, as inside well-coated tanks (Fig. 2), and some could be more serious (Fig. 3). What should an owner do in this situation?

Usually, if the problems were restricted to small corroded areas that were evenly spread in the tank and often not justifying the use of abrasive blasting,

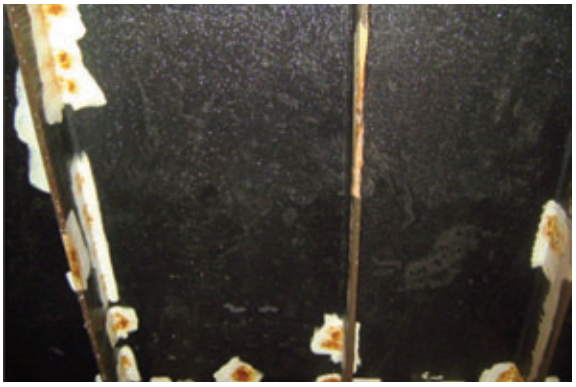


Fig. 4: Maintainance procedures didn't always work well.

Fig. 5: Extensive corrosion

the maintenance was limited to the following sequence: pre-mechanical preparation (chipping with hammers to release heavy scales), washing down with fresh water (min. 3,000 psi), drying, mechanical treatment (St-3), and two touchups of CTE (2 x 125 µm [approx. 5 mils] dft). Nevertheless, this method didn't always work well (Fig. 4).

If the corroded areas were spread throughout the tank, the only satisfactory treatment was abrasive blasting to Sa 2 (minimum), which was more costly than St-3 (Fig. 5).

Analyzing this period of time, we advanced from the use of zinc only anodes to the total coating of ballast tanks. Even with this evolution, it was still necessary to constantly make interventions inside the ballast tanks to repair the coating or to carry out structural repairs due to excessive corrosion where the coating had totally failed.

Despite the costs, some owners preferred to keep the ballast tanks coated (well maintained), or at least tried to, while others neglected this area. So, what could be done to standardize the philosophy for ballast tank maintenance?

Then came two milestones for the protection and maintenance of ballast tanks' integrity: the Enhanced Survey Programme (ESP) and the Performance Standard for Protective Coatings (PSPC).

The Enhanced Survey Program (ESP)

In the face of accidents, loss of vessels, and pollution caused by corrosion inside ballast tanks resulting in structural failures, the Enhanced Survey Program (ESP) was established, according to Regulation 13G, Annex I to 1973/78 MARPOL Convention, adopted by the Marine Environmental Protection Committee (MEPC) of IMO, on March 6, 1992. The program became effective on July 6,1995. The guidelines in the ESP required that bulk carriers and oil tankers be subjected to an Enhanced Program of Inspections, which also created some terms and definitions, as follows.

- Substantial Corrosion: is an extent of corrosion such that assessment of the corrosion pattern indicates a wastage in excess of 75% of the allowable margin for that area but within the acceptable limits (i.e., between 75 and 99% of the allowable wastage).
- Excessive Corrosion: is an extent of corrosion which results in a wastage equal to or greater than the allowable wastage for that area, and normally implies steel renewal.

Substantial corrosion can, therefore, become a huge problem for owners. If the area is inside a ballast tank, it must be inspected by the Classification Society's surveyor at each Annual Survey of Class (close-up inspection and thickness gauging using ultra-sound equipment). If the area is inside a cargo tank, it must be inspected at each Intermediate Survey of Class.

If the time spent to prepare the tanks, provide access (or accesses), and carry out the inspections, leaving the ship in a temporary off-hire condition, does not discourage an owner to leave "substantial corrosion," there is an even bigger problem behind that notation: the Vetting Inspection, requested by the oil majors to be sure the ship is safe to operate in their terminals. Although no documentation exists, many oil majors

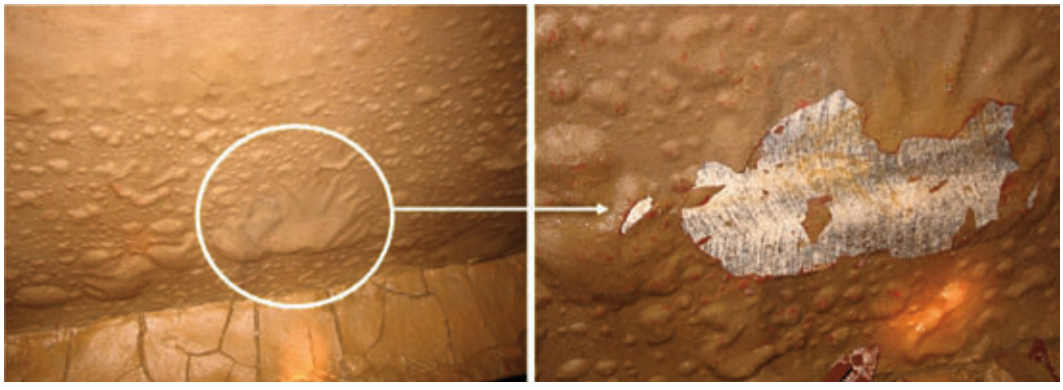


Fig. 6: Failure of zinc silicate shop primer

rejected ships with substantial corrosion. In short, substantial corrosion as well as excessive corrosion leads to steel renewal; therefore, it is much better to keep the coating integrity.

- Suspect Areas: are those areas showing substantial corrosion and/or are considered prone to rapid wastage. Here the problem for an owner is the same as above.
- Corrosion Prevention System: considers a full, hard coating supplemented by anodes or a full, hard coating only.
- Coating Condition: classifies the ballast tank coating condition as good, fair, or poor. Ballast tanks with classification below "good" have the thickness gauging extended as much as deemed necessary by the classification society's surveyor, affecting the owner's costs and increasing the off-hire period.

The ESP was the first attempt to "stimulate" the owners and operators to keep the ballast tank structure well maintained, i.e., well coated.

On November 23, 1995, after the ESP had entered into force, the IMO Resolution A.798(19)—"Guidelines for the Selection, Application and Maintenance of Corrosion Prevention Systems of Dedicated Seawater Ballast Tanks" was adopted. A.798(19) later became the IMO-SOLAS II-1—Regulation 3-2—"Corrosion prevention of seawater ballast tanks in oil tankers and bulk carriers." The most relevant of the new guidelines was the definition of "hard coating," the only type of paint that should be used in shipbuilding (typically, epoxies), and the "suggestion" to use light colors for the finish coating to improve conditions for inspection. Also, due to its toxicity and dark color (dark brown or black), the CTE paint was practically discontinued.

However, obstacles that were not completely removed affected the potential good performance of the new paint schemes. Some obstacles were related to many differences in the quality of products (paints) and services (surface treatment and coating application) offered, which displeased the owners in general. It is well known that the success or failure of a paint scheme is often a direct function of the surface treatment quality. Contamination, principally due to salts, is a very serious problem.

After the launch of Wet Surface Tolerant (WST) epoxy paints in the market, associated with the surface preparation with ultra-high pressure fresh water jetting (UHP FWJ—at a pressure of 2,000 bar [approx. 24,000 psi] or more), the salt contamination problem was overcome. The success of the combination of UHP FWJ with WST epoxy paint is due to the paint being applied just after the steel surface has been washed. If UHP FWJ equipment is not available, dry abrasive blasting under Sa 2 (without any atmosphere control) can be carried out, followed by fresh water washing at 6,000 psi (approx. 500 bar). As corrosion product is contaminated with salt, which can play a part in increasing corrosion, corrosion removal is not a guarantee that the salt is also removed. In fact, the salt will be spread over the whole surface after mechanical treatment (St-3) or, in case of dry abrasive blasting, salt will be inside the "valleys" where the abrasive could not penetrate. In both cases, water under high pressure penetrates all "valleys" removing and dissolving the salts. The process is completed by applying two coats of a WST epoxy paint (2 x 150 µm [approx. 6 mils] before the PSPC; now 2 x 160 µm [approx. 6.3 mils]). In terms of paint scheme performance, the best moment to prepare and paint ballast tanks (and not only them) is during the ship's construction. Once in operation, these tanks will never again be so clean.

Performance Standard for Protective Coatings (PSPC)

THE RESOLUTION

MSC.215(82)—Performance Standard for Protective Coatings for Dedicated Seawater Ballast Tanks in all Types of Ships and Double-Side Skin Spaces of Bulk Carriers—known as PSPC—was adopted on December 8, 2006, and took effect on July 1, 2008, upon entry in force of the amendments to Regulations II-1/3-2 and XII/6 of the SOLAS Convention.

Finally, this was an initiative that brought hope to owners for the standardization of paints and for the surface preparation process. It was expected that by means of standardization, the quality of the paints as well as the surface treatment and coating application, would be assured. Unfortunately, there were "sins" of omission and some restrictions.

- The PSPC only presented dry abrasive blasting to Sa 2½ as a cleanliness standard. There was no reference to UHP FWJ. The mention of Sa 2½ can only confuse owners, leading them to believe that only dry abrasive blasting is authorized. So the PSPC fails to accommodate different surface preparation methods, even though they can give equivalent results, despite considering that 'it is open to verify new technologies.' It should be stated, however, that some classification societies do rec-

Fig. 7: Corrosion at weld seams

Fig. 8: Cracks related to excessively hard paint with inadequate elasticity.

ognize UHP FWJ as an "approved method of surface preparation under this Regulation."

- Only zinc silicate-based shop primers were included, but not all owners had good experiences with this type of shop primer for immersion service. Problems such as blistering and flaking/peeling had been observed. Due to the current PSPC text, any other type of shop primer (zinc-free with/without silicates) can only be approved if the primer passes test criteria much more stringent, making it more difficult to approve other technologies that ultimately can be safer in terms of performance and environmental compliance (Fig. 6).
- The PSPC establishes that any paint system submitted for approval must be applied over steel surface treated to dry abrasive blasting Sa 2½ standard, and all those already approved were applied over blasted steel. However, for the welded block joints and damaged areas, the PSPC accepted "St-3 or better." Nowhere is it mentioned that the approved paint should also be a surface-tolerant epoxy paint to provide good adhesion over poor surface preparation. It is well known that the weld seams of block joints are the Achilles' heel of a paint scheme (Fig. 7).
- There is no requirement in the PSPC for a bending test to be part of the paint approval process. Thus, the approved paint can have excessive hardness without enough elasticity to allow it to follow the structure deformation, which can lead to serious problems, such as cracks (Fig. 8).
- Edge retention paints were not considered. Instead, the PSPC requires that sharp edges should be treated with three passes of grinder (3G) or rounded, and two stripe coats applied. Edge retentive coatings should only need one pass of the grinder (1G) and one stripe coat, which is not a PSPC requirement but saves considerable time and costs in construction (Fig. 9).

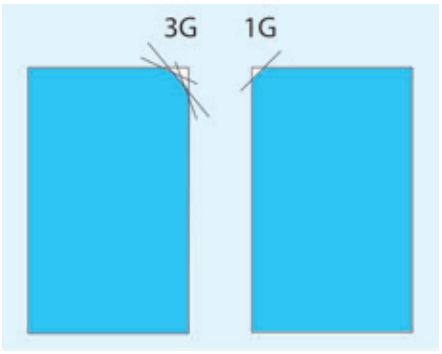


Fig. 9: Profiling edges

Hence, should owners use abrasive blasting for surface preparation inside a double-bottom tank? Can it be assured that, after abrasive blasting, there is no salt contamination on the surfaces? I am sure that the answers are "No." What should be used is an equivalent system, field proven and with a proven track record, i.e., UHP water jetting for surface preparation followed by a wet surface-tolerant epoxy coating. Moreover, the coating should have enough elasticity to compensate for any "flexing" of the substrate and without losing adhesion. The coating should also have some edge retention properties to reduce application time and costs without sacrificing long-term performance (Fig. 10).

In conclusion, the PSPC has been a great step forward to improve the surface treatment and painting process not only during the ship's construction but also during the ship's life. However, to achieve the best performance, we believe it is necessary to make some adjustments to the PSPC to optimize the process and its results while keeping in mind the philosophy of the standardization.

JPCL

Fig. 10: Final result using hydro-blasting and wet surface tolerant epoxy

Tech Program at SSPC 2011 Addresses Coating Trends and More

More than 80 technical papers and presentations have been scheduled for SSPC 2011 featuring GreenCOAT. The technical program runs from Jan. 31 to Feb. 3 in Las Vegas, NV. A list of all presentations, times, presenters and their company affiliations, and a brief summary can be found below. All details are current as of press time. For updated information, or more detailed abstracts, visit www.sspc2011.com.

MONDAY, JANUARY 31

Session 4: A Sure Bet with Polyurea Technology

• "Low Pressure Application Equipment for Joint Filing and Spraying," Stephen Hirt, Adhesive Systems Technology Corp., 2–2:30 p.m.

The presentation will introduce the various ways of dispensing polyurea using low pressure, ambient temperature equipment.

• "Spray Polyurea System for Challenging Application," Mario Lefebvre and Kevin Grillo, Wasser Coatings, 2:30–3 p.m.

The presentation will highlight the benefit of specially-formulated polyurea with new features such as higher chemical resistance, higher elongation and flexibility, and longer gel time.

• "Polyurea is Specified as the Best Dam Coating," Murphy Mahaffey, WIWA Wilhelm Wagner GmbH & Co. KG, 3–3:30 p.m.

This presentation is a job profile of polyurea work done on a water dam in France. Dam condition, material selection, preparation, and application will be covered.

• "Polyurea Great Wall: Beijing-Shanghai High Speed Railway Polyurea Protection Project," Prof. Weibo Huang, Qingdao Technological University, 3:30–4 p.m.

The presentation will discuss one of the largest protective projects in the world to use polyurea and the difficulties faced. The concrete beams on the Beijing-Shanghai High Speed Railway were sprayed with polyurea for abrasion and impact resistance and anticorrosion for 100 years' durability.

TUESDAY, FEBRUARY 1

Session 1 (morning): Commercial Building Seminar—Painting of Big Box Stores

• "Identification of the Coating Problems Faced by Commercial Building Owners," Kevin Brown, Lowe's, and Ken Trimber, KTA-Tator, Inc., 10 a.m.–Noon

The presenters provide an overview of the problems faced when maintaining the coatings on the interior and exterior of concrete masonry unit (CMU) buildings.

• "The Science of Moisture Migration in CMU Walls of Commercial Buildings," Kevin Knight, Architectural Testing, 11 a.m.–Noon

This presentation describes the science of moisture passage through CMU walls and how to determine if the water vapor is driven to pass from the exterior to the interior or vice versa.

Session 2 (morning):
Green—From Start to Finish

• "LED Lighting Advancements for Coatings, Surface Prep, and Industrial Applications," Matt Vosburgh, Western Technology, 10–10:30 a.m.

The presenter will discuss the background and benefits of LED lighting and current product solutions for practical applications in surface preparation/coatings and industrial work spaces.

• "Corrosion and Corrosion Prevention of Offshore Wind Energy Towers," Andreas W. Momber, Muehlhan AG, 10:30–11 a.m.

He will provide a review of corrosion protection for offshore wind energy devices with a focus on the support structure. How to design cathodic protection systems will also be discussed, among other relevant topics.

• "Polyether Diols: A Renewably Sourced and High Performance Ingredient for Coatings," Hari Sunkara, DuPont, 11–11:30 a.m.

The presenter will report on the performance benefits of the Polyether Diols as reactive diluents in 2K solvent- and water-borne polyurethane coating formulations.

• "Fouling Control: Making the Eco-Efficient Choice," Craig Henderson, International Paint LLC, 11:30 a.m.–Noon

The presentation will cover how fouling control coatings not only keep the underwater hull free of organisms, but also influence the operational efficiency of vessels and reduce the carbon footprint.

Session 3 (morning): Challenges in Protecting Ships & Marine Structures

• "NSRP Surface Preparation and Coatings & the Cost of QA," Steve Cogswell, BAE Systems Southeast Shipyards Jacksonville, 10–10:30 a.m.

Among other things, this presentation will discuss the NSRP Surface Preparation and Coating Panel's effort to provide the U.S. Navy with information to make a business decision in preservation and the cost of oversight and documentation as part of the technical data required to make the decision.

• "Application of the Performance Standard for Protective Coatings within the Shipbuilding Industry," Bill Cramman, Lloyds Register EMEA, 10:30–11 a.m.

The aim of the presentation is to cover all of the regulatory aspects of the current and future regulations by IMO and try to answer questions on how they will affect those working in the marine industry.

• "Designing for Coatings to Reduce Through Life Environmental Impact," Dr. M. R. Kattan and D. Broderick, Safinah Ltd.

The presenters will focus on the optimization of structural design with specific application to complex structures in ships (ballast tanks) and research work being carried out to look at how to improve the design of complex structures to reduce the total coating required, reduce waste, and provide better through life performance with reduced maintenance and repair.

Session 4 (morning): Bridges: Engineering Marvels & Community Assets

• "Red Means Go, Polysiloxane Technology on the Roosevelt Island Bridge," Chris McMillan, International Paint LLC, 10–10:30 a.m.

The presentation will discuss the need for an ultra-durable finish coat on the Roosevelt Island Bridge, the pros and cons of polysiloxane technology on large bridge jobs, and more.

• "Performance Evaluation of One-Coat Systems on New Steel Bridges," Pradeep Kodumuri, SES Group and Associates, and Yuan Yao and Seun-Kyoung Lee, Federal Highway Administration, 10:30–11 a.m.

The authors will discuss the results of a study by FHWA to investigate the performance of 8 one-coat systems and two control coatings for corrosion protection of highway bridges.

• "Introduction to FHWA 100-Year Coating Study," Pradeep Kodumuri, SES Group and Associates, and Seung-Kyoung Lee, Federal Highway Administration, 11–11:30 a.m.

The presentation provides an overview

Photos on p. 42 and 43 and the running banner photo are courtesy of the Las Vegas News Bureau

of the work plan and the first data sets collected in a FHWA 100-year coating study that was initiated in August 2009. The object of the study is to identify and evaluate coating materials that can provide 100 years of maintenance-free service for steel bridges.

• "Span PI-2 Climate Control Program—Holding a 210-Foot Span of Highway at 60 Degrees While Pier Concrete is Completed," Russ Brown, Munters-MCS, 11:30 a.m.–Noon

The presenter will discuss the challenges of designing and holding a 65-degree temperature inside a containment in the middle of August.

Photo courtesy of SSPC.

Session 1 (afternoon): Commercial Building Seminar—Painting of Big Box Stores

• "Concrete Masonry Unit (CMU)—Coating System Selection," Rick Page, The Sherwin-Williams Company, 1:30–1:45 p.m.

The presentation will discuss the common coating systems applied to the interior and exterior of CMU walls in commercial buildings, as well as the coating materials to avoid when water and water vapor migration occurs within the CMU.

• "High Gloss/Color Retention Coatings," Beth Kirol, PPG Protective & Marine Coatings, 1:45–2 p.m.

The presentation will cover the coating material options for the field painting of highly visible architectural components that represent the store's brand, such as metal awnings and signs, and accent colors.

• "Metal Components," DeWayne Steele, Rust-Oleum Co., 2–2:15 p.m.

The presentation will discuss the selection of coatings for use on joists, canopies, and structural steel, including problems with protecting steel that penetrates concrete or the ground.

• "Guidelines for Proper Care and Restoration of EIFS and Non-EIFS Exteriors," Bob Dazel, Dryvit, 2:15–2:30 p.m.

The presentation will discuss the proper methods for repairing and coating Exterior Insulation and Finish Systems (EIFS) to achieve long-term aesthetics and performance.

• "Standardized Coating Systems for Commercial Applications," Gina Fleitman, Master Painters Institute, 2:30–3 p.m.

The presentation will cover the use of Master Painter Institute (MPI) Systems for the protection and beautification of commercial buildings. MPI qualification and testing criteria is provided.

• "Cleaning and Painting Techniques and Practices used on Commercial Stores," James Loukusa, Final Coat, 3–3:30 p.m.

The presentation will describe the equipment and practices used for cleaning and painting the variety of substrates found on commercial stores.

• "The Contractor's Logistics and Challenges of Painting Commercial Stores during Operation," Dennis Kitterman, DK Contracting, Inc., 3–3:30 p.m.

The presentation will describe the difficulties faced by contractors when cleaning and painting stores to achieve long-term coating protection without disrupting customer flow.

Session 2 (afternoon): Green Opportunities & Sustainability for Growth

• "LEED, Coatings & the Contractor," Brandon T. Moore, University of Nevada, Las Vegas, 1:30–2 p.m.

The presenter will explore the LEED process, how coatings can contribute to the ongoing sustainability of a development, and how the coating contractor can benefit from a strong position in the green coating marketplace.

• "Greener Options for Site Applied Gelcoat Topcoat Refurbishment Using Polyaspartic Technology," Steven Reinstadtler, Bayer MaterialScience, 2–2:30 p.m.

The presentation will share new developments in polyaspartic technology, as well as compare traditional topcoat repair options with polyaspartic technology, discuss examples of structures that can benefit from this type of coating, and more.

• "Application Study on the Performance of Polyurethane Paint as a Green Coat Using Biobased Coconut Polyol Resin for Protective, Marine, and Industrial Coatings," Luis G. Fernando, Kemwerke Incorporated, 2:30–3 p.m.

The performance properties of coconut based bioresin in polyurethane paint compared with 2K-polyurethane paint using acrylic/polyester polyol:resin will be discussed in terms of physical and corrosion properties under accelerated laboratory weather conditions.

• "A Novel, 100% Solids, Zero VOC Coating System for Long Lasting and Maintenance Free Foul Release and Inhibition," Russell Giudici, Duromar Inc., 3–3:30 p.m.

This presentation discusses efforts to develop a zero VOC coating system based on renewable raw materials that can provide a green alternative to solvented silicone elastomers.

• "Ecologically Sound Coating Technology," Paul Whitehead, PPG Protective & Marine Coatings, 3:30–4 p.m.

The presentation takes a comprehensive look at the benefits of green technologies on coating projects, such as

enhanced service life with less environmental impact.

• "Thermal Insulating Coatings Can Reduce a Facility's Carbon Footprint in More Ways Than One," Michael Stelmach, Mascoat, 4–4:30 p.m.

The presenter will discuss several ways that TICs can provide insulation, protect a facility from corrosion, and possibly produce a negative carbon footprint on the environment.

• "This Ain't Your Mother's Dehumidifier Anymore! New Advancements in Temporary Dehumidification Equipment Meets "Green" Objectives While Reducing Operating Costs," Russ Brown, Munters-MCS, 4:30–5 p.m.

The presentation will cover the first technological breakthrough in the temporary climate control industry in over 10 years. Detailed information will be provided on new, green technology, and it will be compared to what is currently being utilized in the field for water tank blast and coat applications.

Session 3 (afternoon): Modern Marvels: How High Performance Coatings Work in the Marine Industry

• "Self-Healing Systems for Industrial and Marine Protective Coatings," Gerald O. Wilson and H. Magnus Andersson, Autonomic Materials, Incorporated, 1:30–2 p.m.

The presenters will discuss the principles that emerged in the design of self-healing systems based on microencapsulated healing agents and how they are presently used in design and optimization of self-healing systems for industrial and marine protective coatings.

• "Coatings For Zebra/Quagga Mussel Control, 2nd Year Evaluation," Allen Skaja, Ph.D., and David Tordonato, Ph.D., U.S. Bureau of Reclamation, 2–2:30 p.m.

The second year of research investigated new foul-release coatings technologies and fluorinated powder coatings for mussel control. Force measurements were also conducted to determine the force to remove mussels from various coated surfaces.

• "Retention of Pre Construction Primers during Shipbuilding," J. Peter Ault, Elzly Technology Corporation, 2:30–3 p.m.

This presentation will review commercial industry practices and the guidance provided by marine coating manufacturers, and give an overall understanding of what pre construction primers (PCP) are.

Photo courtesy of SSPC.

Workshops at SSPC 2011

The following is a list of all workshops scheduled for SSPC 2011 featuring GreenCOAT as of press time. For more information, visit the Technical Program on www.sspc2011.com.

MONDAY, JANUARY 31

Session 1: Workshop—Protective Coatings, 2–4:30 p.m.

Session 2: Workshop—Failure Analysis of Paints and Coatings, 2–4:30 p.m.

Session 3: Workshop—An In-Depth Look at Standards Most Frequently Used by Industrial Painters, 2–4:30 p.m.

Session 5: Workshop—Suspended Scaffold Access in Power Plants, Bridges, and Offshore, 2–4:30 p.m.

WEDNESDAY, FEBRUARY 2

Session 2: Workshop—Waterborne Technologies for Protective Coatings, 9–11 a.m.

Session 4: Workshop—Failure Analysis of Paints and Coatings on Concrete, 3–5 p.m.

THURSDAY, FEBRUARY 3

Session 1: Workshop—Creating an Inspection Plan; Strategic Planning for the Coatings Inspector, 9–11 a.m.

SSPC Training and Certification Programs

The following SSPC training courses are slated to be held at SSPC 2011 in Las Vegas, NV, at the Mandalay Bay Resort & Convention Center, as of press time. Courses are scheduled to run from 8:00 a.m. to 5:00 p.m., except Protective Coatings Inspector Training (7:30 a.m.–6:00 p.m.) and two new courses, Using SSPC PA 2 Effectively, and Basics of Estimating Industrial Coatings Projects (8:00 a.m.–noon).

The deadline to register for training courses is January 7, 2011, and course registration must be done separately from conference registration. For more information, contact Dee Boyle: boyle@sspc.org; 877-281-7772, ext. 2202.

Look for more detailed coverage of SSPC 2011 training courses in the December *JPCL*.

SURFACE PREPARATION & COATINGS APPLICATION

January 29, Coating Application Specialist Certification Program (CAS)
January 29–30, Applicator Train the Trainer (ATT)
January 30–31, Airless Spray Basics (ASB)
January 30–31, Airless Spray Certification (C12)
February 4, Abrasive Blasting Program (C7)

COATING INSPECTION

January 28, Navigating Standard Item 009-32 (009-32)
January 28–February 1, Bridge Coating Inspector Training (BCI 1)
January 28–February 2, Bridge Coating Inspector Certification (BCI 2)
January 28–February 1, Protective Coatings Inspector Training (PCI 1)
January 28–February 2, Protective Coatings Inspector Certification (PCI 2)
January 28–29, Concrete Coating Basics (CCB)
January 29–February 2, NAVSEA Basic Paint Inspector (NBPI)
January 30–February 2, Concrete Coating Inspector Program (CCI)

COATINGS TECHNOLOGY, MANAGEMENT & SAFETY

January 29, Basics of Estimating Industrial Coatings Projects (Estimating) *NEW*
January 29–February 2, Fundamentals of Protective Coatings (C1)
January 29–February 2, Specifying and Project Management (C2)
January 30, Evaluating Common Coating Contract Clauses (Contracts)
January 30–February 2, Lead Paint Removal (C3)
January 31, Introduction to Polyurea for the Applicator & Contractor (Poly)
February 1, Lead Paint Removal Refresher (C5)
February 1, SSPC Protective Coatings Specialist Exam (PCS)
February 4, Using SSPC PA 2 Effectively (PA2) *NEW*
February 4–5, Project Management for the Industrial Painting Industry (Proj Mgmt)
February 4–5, Quality Control Supervisor (QCS)

• "A Study on Rapid Cure Non-Skid Coating Material and Coating System for Exposed Deck of Naval Ships," Ki-Hong Kim, HYUNDAI Heavy Industries Co., Ltd., 3–3:30 p.m.

In the study presented, hybrid coating systems with polyurethane and polyurea mixture were formulated to improve the elongation at fracture.

• "Effects on the Edge Corrosion Prevention Capacity of Organic Coatings," Andreas W. Momber, Muehlhan AG, 3:30–4 p.m.

The presentation reports on the results of laboratory investigations on edges prepared with different tools and painted with different coating systems for applications in water ballast tanks.

• "Going Green in Marine," Eric Bosanac, PPG Protective & Marine Coatings, 4–4:30 p.m.

The author will review the past and present progress of moving the maritime shipping community to environmentally friendlier solutions as it relates to protective and marine coatings.

Session 4 (afternoon): Environmental Health and Safety

• "USDA BioPreferred Program," Steve Devlin, Iowa State Univ., 1:30–2 p.m.

The presenter will explain the BioPreferred program and introduce its new labeling program for biobased products, as well as discuss the specific coating and paint applications where biobased alternatives have been identified.

• "Architectural and Industrial Maintenance (AIM) Regulatory Update and Forecast," David Darling, American Coatings Association, 2–2:30 p.m.

The presentation will provide an overview and historical perspective of why the VOC content of AIM products is regulated, as well as an overview of the current AIM regulations and a 5-year forecast of AIM regulations in the U.S.

• "Current and Emerging Trends in Occupational and Environmental

Health," Alison B. Kaelin, CQA, KTA-Tator, Inc., 2:30–3 p.m.

This presentation takes a look at emerging environmental, health, and safety issues that may impact painting contractors and facility owners. Specific topics include a summary of OSHA and EPA's new and proposed revised regulations to lead, paint, and construction.

• "Environmental Health and Safety, Plans, Programs, and Training for the Coating Industry," Thomas E. Enger, Clemco Industries, Corp., 3–4:30 p.m.

The purpose of this presentation is to expose the attendee to the plans, programs, and training required to assure their employees are informed, protected, and understand their responsibility to protect themselves and fellow employees from workplace hazards.

WEDNESDAY, FEBRUARY 2

Session 1 (morning): Corrosion Prevention & Protective Coatings for the Military

• "Environmental Issues in Corrosion Prevention," Daniel Dunmire, Department of Defense, Office of Corrosion Policy and Oversight, 9–10 a.m.

The presentation describes how the Department of Defense is addressing the dilemma of finding effective corrosion treatment methods while also protecting the environment. Risk management options, Department of Defense policy, and current projects will be discussed.

• "The Importance of Protective Coatings in Preventing Corrosion in the United States Army," Dr. Roger D. Hamerlinck, D.B.A., D.M.L., United States Army, 10–10:30 a.m.

This presentation will focus on the importance of the adequate corrosion prevention and control (CPC) techniques to the life cycle cost (LCC) of equipment and facilities in the Army.

• "The Importance of Protective Coatings in Preventing Corrosion in the United States Navy," Dail Thomas, NAVSEA, 10:30–11 a.m.

The presenter will discuss how protective coatings will continue to play a role in corrosion prevention and control with the goal of increasing service life for platforms and equipment.

• "Decision Making Process for Applying Military Coatings (CARC—Chemical Agent Resistant Coatings, Epoxies, Urethanes, and Others)," Gene Heitmeyer, Ryan Smith, and Chad Sellman, Colonial Surface Solutions, Inc.

The presentation provides a basic profile to help decide if becoming involved with the military coating process is good for your company. The purpose is to enhance ones thought process and learning techniques regarding key considerations before working with the military business world.

Session 3 (morning): Alternative Coatings in Water

• "Southern Nevada Water Authority-Polyurethane Lining Evaluation and Testing," Cynthia L. O'Malley, KTA-Tator, Inc., and Scott Christensen, HDR Engineering, Inc., 9–9:30 a.m.

Participants will recognize issues associated with SNWA's groundwater development project, in which an alternative lining is being considered.

• "Waterborne Coatings for Heavy Duty Applications in M&PC Market," Juliana Francisco and Thais Claudino, The Dow Chemical Company, Dow Coating Materials, Sao Paulo, SP, Brazil, 9:30–10 a.m.

The presentation will demonstrate that waterborne epoxy systems can perform as well as solvent borne systems in harsh environments.

• "Green Alternatives to Zinc Potable Water Coating Systems," Don Futch and Steve Harrison, Carboline Company, 10–11 a.m.

The presenters will discuss some of today's popular potable water grade zinc coating systems and why they are not necessarily the optimum coating selection for the environment.

Session 4 (morning): Developing the Coatings Industry Workforce

• "From Standard to Certification: Evolution of the Coating Application Specialist Program," John Burcaw and Daniel Penski, IUPAT/FTI, 9–10 a.m.

The presenters will chronicle the evolution of the Coating Application Specialist and deliberate steps the IUPAT/FTI has taken in recent years to deliver to its members and the industry the training designed to meet the requirements for a Level II Certified Coating and Lining Application Specialist. They will also discuss the development of a U.S. Department of Labor-certified Coating Application Specialist Apprenticeship Program.

• "The Williamson Free School of Mechanical Trades—The Glen Stevick Structural Coatings Technology Course," Lucas Clark, Carboline Company, 10–11 a.m.

The presenter will discuss the Structure Coatings Technology degree at the Williamson School in Media, PA. It is a 3-year post high school graduate program designed to prepare students for careers in the protective coatings field.

• "Introducing the Nation's First Bachelor of Science in Corrosion Engineering and the National Center for Education and Research on Corrosion and Materials Performance," Sue Louscher, The University of Akron, 10:30–11 a.m.

The presentation will provide information on the nation's first baccalaureate degree in corrosion engineering—a

program that will offer a multi-disciplinary approach to education, training, and research that emphasizes strong science and engineering principles and a strong management component.

Session 5 (morning): Women in the Coatings Industry

• "Women in the Coating Industry—Changes in the Last 31 Years," Joyce Wright, Northrop Grumman, 9–10 a.m.

This paper focuses on leadership points and analyzes two novels that can aid the audience with a deeper understanding of self through self assessments.

• "Women in the Coating Industry—Defining Our Present State," Cynthia O'Malley, KTA-Tator, Inc., 10–10:30 a.m.

The presentation will outline the present state of women in the coatings industry and then discuss a defined strategy to measure and evaluate progress and success of goals.

Session 1 (afternoon): Bridge—Assuring Performance and Quality Projects—Sponsored by AASHTO

• "So What Do All of These Numbers Mean? A Users Guide for Coatings Performance Data," Greta Smith, AASHTO, and Derrick Castle, Kentucky Transportation Cabinet, 3–3:30 p.m.

This presentation is designed to improve the end users' understanding of the tests conducted for performance-based evaluation of structural steel coating systems.

• "Containment, Work Platform Systems, and Component Design," Matt McCane, Greenman-Pedersen, Inc., 3:30–4 p.m.

The presentation will define what a containment/work platform is for the removal of lead paint for steel structures.

• "Crevice Corrosion in Concrete and Steel Structures," Thomas D. Gibbons, P.E., Greenman-Pedersen, 4–4:30 p.m.

The presentation will explain the different ways that crevice corrosion affects beams and other concrete structures, as well as the reasons for the failures and the types of testing tat is needed to determine the damage before total failure occurs.

• "Preparing an Inspection Plan for Bridge Maintenance Painting," William D. Corbett, KTA-Tator, Inc., 4:30–5 p.m.

The presentation will review the purpose and benefits of developing an inspection plan, review the content of SSPC's Guide for Planning Coatings Inspection, illustrate two formats for inspection plans, and demonstrate how to populate an inspection plan based on the requirements of a bridge coating specification.

Session 2 (afternoon): Conquering Corrosion with Coatings

• "Angels and Demons in the Realm of Protective Coatings: The Underworld of VOCs," Mike O'Donoghue, Ph.D.; Vijay Datta, MS; Russell Spotten; and Beth Eng, MS, International Paint LLC, 3–3:30 p.m.

The presenters examine the hidden implications that coatings with exempt solvents pose for surface preparation and for the success or failure in immersion service.

• "One Component Waterborne Resins for Direct-to-Metal Applications," Dr. Raymond Stewart, Bayer MaterialScience LLC, 3:30–4 p.m.

The presentation will emphasize marketplace demands and chemistries that provide unique opportunities for the formulation of coatings for DTM applications.

• "Cathodic Nanocoating Technology for Corrosion Control of Steel Structures," Todd Hawkins, Tesla NanoCoatings Limited, 4–4:30 p.m.

The presenter will discuss the benefits and mechanical and electrical performance characteristics of carbon nanotechnology.

• "Study of Scribe Type on Accelerated Underfilm Corrosion Creep," Carl Reed, International Paint LLC, 4:30–5 p.m.

The presenter will discuss a study performed to compare the effect on corrosion creep using 6 different scribe types and thicknesses.

Session 3 (afternoon): Coatings & Technology for the Offshore/Marine/Navy Marketplace

• "Painting Practices for Floating Production, Storage, and Offloading Systems," Michael Surkein, ExxonMobil Development Company, 3–3:30 p.m.

This paper will cover the numerous types of coatings used for floating production, storage, and offloading (FPSO) systems and will address details of a well-developed inspection plan during construction.

• "Making it Work—When to Reconsider Coating Specification," Greg Ruschau, ExxonMobil Development Company, 3:30–4 p.m.

A case study will be presented in which a zinc rich epoxy coating provides advantages over the specified inorganic zinc silicate.

• "Further Advances in Paperless QA for Coatings Inspection," John F. Fletcher, Elcometer Limited, 4–4:30 p.m.

The creation of reports combining test results from a broad range of both digital and non-digital test methods will be discussed with particular emphasis on the preparation of pre-formatted forms.

• "The Use of Ultra High Solids/Rapid Return to Service," Frank Saunders, The Sherwin-Williams Company, 4:30–5 p.m.

The presenter will discuss how ultra high solids coatings are gaining favor over old solvent borne coating technology for repair and overhaul projects, as well as some new construction projects.

Session 5 (afternoon): Best Practices for Thriving in a Challenging Economy

• "Time is Money: Improving Shop & Field Painting Throughput by Reducing Finish Coat Handling Time," Benjamin Fultz, Bechtel Corporation; William D. Corbett, KTA-Tator, Inc.; and Kurt Best, Bayer MaterialScience LLC, 3–4 p.m.

The study to be presented compares the handling time of three generic types of high performance finish coats cured under normal and cold/damp conditions, applied as two- and three-coat systems, using traditional standardized test procedures as well as novel testing procedures designed to simulate actual handling and environmental conditions in the shop or field.

• "Finding a New Market Niche," Peter Blattner, Alaron Corporation, 4–4:30 p.m.

The presenter will discuss how to conquer fear with knowledge if considering breaking into a new niche.

• "Managing Construction Risk Through

Aggressive Schedule Management," Greg Powers, Red Brick Consulting, Inc., 4:30–5:30 p.m.

This presentation will discuss key issues relating to the development of a defendable baseline schedule with appropriate triggers for risk management, submittal management, and the discrete work requirements for the subcontractors. Several other topics about scheduling will be covered.

THURSDAY, FEBRUARY 3

Session 2 (morning): Water Storage: Tanks & Reservoirs

• "Green Surface Preparation Methods for Coating Exterior Steel Water Reservoirs," Don Futch, Carboline Company, 9–9:30 a.m.

Participants will learn the high environmental impact effects of traditional surface preparation methods and the low environmental impact effects of "green" surface preparation methods.

• "Strategic Corrosion Protection of a 30 Million Gallon Combined Sewerage Overflow Tunnel," Steve Kelso, Sauereisen, Inc., and Bob Maley, Corrosion Probe, Inc., 9:30–10 a.m.

The paper will discuss the pros and cons of the alternative corrosion protection methods considered on this project, the rationale for the systems selected, and the challenges overcome during the 10-month installation period.

• "Understanding the True Meaning of Green for the Wastewater Industry," Eric Brackman, RFI Consultants LLC, 10–10:30 a.m.

The presenter discusses how "green" in the wastewater industry encompasses the need to provide services and products within the confines of restricted budgets while also providing quality projects.

• "Epoxy Revolutionizes Water and Wastewater Underground Infrastructure Protection and Rehabilitation with Energy Efficient Green Technology," Steve Wierzchowski, RS Lining Systems, LLC, 10:30–11 a.m.

The paper presents an overview of systems available in the market for underground rehabilitation and their health and safety characteristics performance capabilities, and delivery mechanisms.

Session 3 (morning): Painting in Nuclear Facilities

• "Coatings Program Requirements at Nuclear Power Plants," Daniel L. Cox, P.E., California Edison, 9–9:30 a.m.

The presentation will cover regulatory requirements and licensing basis for Nuclear Power Plant (NPP) coating, NPP coating programs and procedures, training and qualification requirements, and more.

• "Contract Work in Nuclear Power Plants," Daniel L. Cox, P.E., California Edison, and Judy Cheng, Pacific Gas and Electric Company, 9:30–10 a.m.

The presentation will provide a general understanding of NPP entry and access, NPP nuclear safety and security requirements, NPP workplace considerations, and the impact of the NPP outage schedule to coating work.

• "Protective Coatings in the 21st Century Nuclear Plants," E. Bud Senkowski, P.E., KTA-Tator, Inc., 10–10:30 a.m.

The paper will investigate the anticipated use and types of protective coatings in new reactor designs; how the NRC is moving to regulate the technical requirements for coating selection and testing; how design philosophies of the new reactor plants might affect planned coating systems; and possible methodologies for the long-term maintenance of coating systems.

• "Preliminary Plans for Nuclear Contractor Qualification Program," Michael Damiano and John Caturano, SSPC, 10:30–11 a.m.

The presenters will give an update on the development of a coating contractor qualification program to supplement the SSPC-QP 1 and QP 3 QMS programs for coating contractors. The new Nuclear Coating contractor certification program will include unique criteria for craft worker qualification, qualification of QC inspectors, QA program requirements and implementation procedures, specific requirements for working in safety-related areas of NPP, and management's knowledge of applicable ASTM standards and applicable NRC regulations.

Session 4 (morning): On the Surface: The Challenge of Getting Ready to Coat

• "Blasting Exteriors of 3 Five Million Gallon Leaded Tanks Without Contamination," Burt Olhiser, Vantage Point Consulting, 9–9:30 a.m.

This presentation will review how three five-million gallon water storage tanks with lead-based paint on them were blasted and coated successfully without risk of site contamination, worker exposures, or overspray claims, even though the work was done with homes immediately adjacent.

• "Environmental and Economic Impact of Utilizing Climate Control Measures During Surface Preparation and Coating," Don J. Schnell, Dehumidification Technologies, LP, 9:30–10 a.m.

The presenter will detail the long-term economic and environmental benefits of the use of climate control and identify various ways to plan the climate-controlled project to minimize financial and environmental costs.

• "Unique Design and Award Selection Process (The Re-Painting of a 54-Story Building)," Bernard W. Koblinsky, Bank of New York Mellon, and Kirk. R. Shields, Greenman-Pedersen, Inc., 10–10:30 a.m.

The presentation details the approach and initial start-up of repainting the exterior of the 54-story, metal-sided One Mellon Center building in Pittsburgh, PA.

• "Advances in Mechanical Surface Preparation," Kumar Balan, Wheelabrator, 10:30–11 a.m.

The presenter will discuss the future of surface preparation, as well as mechanical surface preparation and green manufacturing.

Session 1 (afternoon): Protecting Concrete

• "Concrete Repair is Sustainably Green," Fred Goodwin, BASF Construction Systems, 3–4 p.m.

The presentation will provide information on the synergy between sustainability initiatives, green building practices, and concrete repair.

• "Installation of a Primary Containment System in Existing Underground Concrete Storage Tanks," Sean J. Massey, P.E., Shaw Environmental and Infrastructure Group, 4–4:30 p.m.

The presentation will cover a tank repair project on three previously uncoated underground concrete storage tanks that had been in operation since 1942.

• "Reinforced Concrete Corrosion Assessment, Re-Passivation, and Monitoring in an Industrial Environment," Bruce A. Collins, Restruction Corporation, 4:30–5 p.m.

The presenter will discuss the investigation into the corrosion sources causing deterioration of four separate cooling towers.

Session 2 (afternoon): What We All Need…Safety Programs & Fall Protection

• "The Integration of Safety Management Into a Quality Management System," Cory Allen and Jeff Theo, Vulcan Painters, Inc., 3–3:30 p.m.

The presenters will show the similarities in management of a safety program and a quality management system by comparison of requirements of OSHA, ISO 9001:2008, and SSPC QS-1.

• "A Contractor's Perspective on Fall Protection," Robert Ikenberry, California Engineering Contractors, Inc., 3:30–4 p.m.

The presentation examines typical exposures (risks), the rules that apply to fall protection, and practical approaches that can help reduce or avoid fall injuries on painting projects.

• "Safety, Fall Protection, and Rescue Strategies When Using Suspended Scaffold," Clint Ramberg and Jim Dougherty, Spider, 4–5 p.m.

This presentation will focus on the safety equipment required to work from suspended scaffold. The topic of planning, training, and rescue will be covered.

Session 3 (afternoon): The Past, Present, and Future of Bridge Coating Technologies—Sponsored by The National Steel Bridge Alliance

• "Polysiloxane Coatings for Steel Bridge Structures," Chris McMillan, International Paint LLC, 3–3:30 p.m.

This presentation will cover the use of polysiloxane technology for painting of steel bridge structures. Features and benefits of polysiloxane compared to traditional technology will be discussed.

• "Bridge Painting—The 100-Year Bridge," Eric Kline, KTA-Tator, 3:30–4 p.m.

The presentation will discuss the future of steel bridge coating technology in terms of research and development, innovative applications, and how the industry is poised to compete with future environmental regulations and trends.

• "Why Would Anyone NOT Galvanize Steel if They Can?", Frank Gerace, Hubbell Galvanizing, 4–4:30 p.m.

The presenter will discuss how hot dipped galvanizing provides economical, long-lived, and sustainable corrosion protection.

JPCL

Ten Achieve SSPC PCS Certification

Ten industrial coatings professionals recently became certified SSPC Protective Coatings Specialists (PCS) after taking the PCS exam.

Five of the coatings specialists became certified in Dubai. The newly certified specialists are Mohamed Ali El Hamalawi of Cairo, Egypt; Mohamed Said Mohamed Abdel Aziz of Terga, Algeria; Buddhadeb Duari of West Bengal, India; Hesham Abd El Naby Mohamed Haggag of Doha, Qatar; and Kamal Mohamed El Sayed of Abu Dhabi, UAE.


Mohamed Ali El Hamalawi


Mohamed Said Mohamed Abdel Aziz


Buddhadeb Duari


Hesham Abd El Naby Mohamed Haggag


Kamal Mohamed El Sayed


Gunnar Ackx


Norm Suzich


Daniel J. Woyt


Micah McCluer


Matthew Stremler

Gunnar Ackx, who is on the SSPC Board of Governors, recently became certified. He is located in Brugge, Belgium.

Four specialists were recently certified in the U.S. Those certified were Norm Suzich, the SSPC Certification Manager in Pittsburgh, PA; Daniel J. Woyt of Houston, TX; Micah McCluer of Newport News, VA; and Matthew Stremler of Hampton, VA.

SSPC's PCS Certification recognizes industrial coating professionals for their extensive knowledge in the principles and practices specific to industrial coatings technology. Each coatings professional is evaluated on his or her mastery of coatings type, surface preparation, coatings application and inspection, contract planning/management, development of specifications, and the economics of protective coatings.

To become a certified PCS, each professional is first evaluated for his or her education and work experience to determine the extent of training to be completed prior to the exam. The training courses are SSPC-C1, Fundamentals of Protective Coatings for Industrial Structures, and SSPC-C2, Specifying and Managing Protective Coating Projects. The final step is the comprehensive examination.

For information about SSPC's certification programs, visit www.sspc.org.

Hampton Rds Chapter Continues Scholarship

The SSPC Hampton Roads Chapter is one of SSPC's most successful local chapters, winning the SSPC Outstanding Chapter Award several times.

The chapter has become instrumental in helping SSPC provide training and certification to the shipyards and contractors in the Hampton Roads area. Members volunteer their time and facilities and share the responsibility to help meet the training needs of others. In return, the training activities have provided the chapter with financial stability.

At the monthly business meeting in January 2006, the chapter officers established a scholarship committee and program to help high school seniors pay for their college education. The first scholarship was awarded in September 2006 in the amount of $1000.

The chapter scholarship program has grown substantially, and in 2010, the chapter gave out eleven $1000 scholarships to the family members of local members in good standing.

To qualify for the scholarship, one must be a son, daughter, grandson, or granddaughter of a member in good standing with the chapter who is a senior in high school planning on attending a four-year college or university. For complete details on requirements, contact Terry New at airbosn1@msn.com.

2011 Training Schedule and Catalog Available

The SSPC 2011 training catalog and training schedule are now available on SSPC's web site, www.sspc.org/training.

This link also provides registration forms and information on how to become a training instructor.

Seven Attend C1 Course in TX

SSPC held its Fundamentals of Protective Coatings (C1) course in Pasadena, TX, on Oct. 11–15. The course was hosted by Munters Corporation—Moisture Control Services and instructed by Ernst Toussaint. Seven students attended.

Llyod Krueger, a student of the course and manager of technical projects and safety for MCS US Corporation, stated, "It was a pleasure attending this class (my first SSPC class) and what an eye-opening experience. Ernst is a great instructor and kept the material interesting and relevant to what we do in the field every day. Of the seven in the class, five of us had little experience when it came to actual field experience in coating applications. This is why MCS US Corp. (formerly a division of Munters) continues to support SSPC. SSPC makes it possible for everyone (who wants to learn) in the coatings industry to get the training and knowledge they need to deliver a superior end result."

Students of the SSPC C1 Course in Texas (Back row, l-r) Lloyd Krueger, Ernst Toussaint (instructor), Zane Mauldin, Jason Barrow, Dave Wikoff (Front row, l-r) Melissa Trice, Mary Gabriel, Erin Robinson

First SSPC Course held in Bandung

Ten students attend first ever SSPC course in Bandung, Indonesia.

SSPC held its Protective Coatings Instructor (PCI) course in Bandung, Indonesia, on Oct. 17–22. It was the first SSPC course ever held in Bandung. Ten students attended the course, which was instructed by Muniandi Dewadas.

PCI Course Held in Singapore

SSPC held its Protective Coatings Inspector (PCI) Course in Singapore on Sept. 27 to Oct. 8. Nine students participated, and the instructors were Bani Quim and Muniandi Dewadas. This is the tenth PCI course held by SSPC in Singapore.

SSPC's UAE Chapter to Meet Nov. 30

The United Arab Emirates chapter of SSPC will hold a meeting from 5 to 10 p.m. on Nov. 30 at the India Club in Dubai.

The topics of the meeting will be marine and offshore coatings, surface preparation, inspection and training, and an update on chapter activities.

For more information, contact the chapter event's chair, Fernando Batista, at batista@eim.ae.

SSPC Announces New Mobile Platform

SSPC has announced that you can now receive exclusive SSPC information on your mobile phone via text message. For a limited time, those who join the SSPC mobile network have a chance to win a free iPad.

The new mobile network includes topics such as training, SSPC conferences and events, membership, products, certification, and organization news. There is no charge from SSPC to join, but standard carrier message rates may apply. Text SSPC to 94253 to register.

Those who register before 11:59 p.m. on Dec. 31, 2010 will be entered to win an iPad. Entry is also available online for free at www.sspc.org. or www.sspc2011.com. The contest is limited to one entry.

For more information and a complete list of rules, visit www.sspc.org.

SSPC Begins Revision of Soluble Salt Standard

SSPC is beginning its five-year revision and update of SSPC-Guide 15, *Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates*.

The standard was first issued as SSPC-TU 4 in 1997 and revised into its current form in 2005. The 2010 revision will include discussion of technologies and methods that have become available since the 2005 revision.

regulations

Fall Hazards Again Top OSHA's Violations List

Scaffolding, fall protection and ladder violations claimed three of the top five spots on OSHA's list of violations in 2010—a record that has stubbornly persisted for years, officials said.

For the third straight year, scaffolding violations led the list of Top 10 Occupational Safety and Health Administration violations for 2010. The figures apply to fiscal 2010, which ended September 30, 2010.

Fall protection ranked second, for the second straight year. Ladder violations, which had taken the No. 9 and 8 spots the last two years, jumped to No. 5 this year. In all, the three fall-related categories accounted for 19,750—about 21%—of OSHA's approximately 94,000 citations this year.

Little Change Seen

Also for the second year in a row, Hazard Communications ranked third on the list, with 6,633 citations; Respiratory Protection placed fourth, with 3,932.

The rest of the Top 10 violations were, in order, for Control of Hazardous Energy (Lockout/Tagout), Electrical (Wiring Methods), Powered Industrial Trucks, Electrical (General), and Machine Guarding.

Overall, it was a grimly familiar list that accounted for nearly half of the year's total OSHA citations, Thomas Galassi, OSHA's directorate of enforcement programs, said in a recent presentation to the National Safety Council.

"There is a close similarity between the top 10 from last year and this year," Galassi said.

Top 10 Most Cited Standards

2010	2009	2008
Scaffolding	Scaffolding	Scaffolding
Fall Protection	Fall Protection	Hazard Communications
Hazard Communications	Hazard Communications	Fall Protection
Respiratory Protection	Respiratory Protection	Respiratory Protection
Ladders	Control of Hazardous Energy	Control of Hazardous Energy
Control of Hazardous Energy	(lockout/tagout)	(lockout/tagout)
(lockout/tagout)	Electrical – Wiring Methods	Electrical – Wiring Methods
Electrical (wiring methods)	Powered Industrial Trucks	Powered Industrial Trucks
Powered Industrial Trucks	Machine Guarding	Ladders
Electrical (general)	Ladders	Machine Guarding
Machine Guarding	Electrical – General	Electrical – General

Source: OSHA

Falls Decline

There was some good news. Scaffolding violations declined to 8,371 this year from 9,093 in 2009. Ironically, OSHA took little credit for the decrease, saying it was more likely due to the bad economy.

"This impact may be attributed to the general decrease in construction employment as well as the decrease in particular segments," an OSHA spokeswoman said.

Still, the agency reserved some criticism for employers. "While the industry has seen many technological advances in fall protection, OSHA has seen only a portion of construction employers adopt the technology and programs necessary to reduce the huge number of construction-related fall fatalities," the spokeswoman said.

"The agency recognizes the employers who have implemented the new technology and nearly eliminated fall fatalities on their projects. We will continue to cite employers who violate OSHA's construction fall protection requirements through aggressive use of all the enforcement tools available to the agency."

Falls remain the leading cause of death in construction-related industries, and several scaffolding accidents, even when not deadly, have drawn national interest. In October, for instance, two industrial painters inside a water storage tank in Hollywood, FL, fell 30 feet when their scaffolding broke. One suffered a spinal cord injury; the other, a broken leg.

Other Violations

Hazard Communication, once the most-cited violation, accounted for 6,633 total violations in 2010. These include improper labeling and safety sheets for hazardous chemicals by manufacturers and importers.

Respiratory Protection was ranked fourth, with 3,932 violations. About five million workers lack respirators to protect them from dust, vapors and other hazards, Galassi said.

WorkBoat Show Features Many Coatings Companies

The International WorkBoat Show will draw commercial marine professionals from all over to the Morial Convention Center in New Orleans from Dec. 1–3.

This year, the WorkBoat Professional Series will replace the show conference. With approximately 20 programs scheduled at press time, the series is designed to keep professionals on top of what's going on in the industry.

The exhibition at WorkBoat will feature over 970 companies, many who are involved in the manufacture, supply, and application of marine coatings. Below is a list of such companies known to *JPCL* as of press time.

For more information about WorkBoat, visit www.workboatshow.com.

• Carboline Company offers a product line for solving marine/offshore corrosion problems through protective coatings and linings. Booth 2329

• CHLOR*RID International, Inc. provides soluble salt information, education, field tests kits, and decontamination products. Booth 1338

• Chukar Waterjet is a leader in the application and rental of mobile ultra-high pressure waterjet equipment. Booth 3359

• Dalseide Inc. (Rustibus) makes maintenance equipment and tools used in marine industries worldwide. Booth 2636

• Eagle Industries is a leader serving the corrosion protection industry with containment and ventilation solutions. Booth 128

• Epmar Corporation (Syndeck) specializes in ultra lightweight marine products for all interior decking requirements. Booth 3426

• GARD Specialists Co., Inc. is Hub Zone Certified and ABS approved and develops specialty maintenance products. Booth 257

• Grace Distributing offers an ultra low VOC rust converting primer and products for tugs, barges, oil rigs, service boats, and more. Booth 3535

• Hempel (USA), Inc. develops and produces high standard coatings. Booth 2530

• InduMar Products, Inc. manufactures a full line of leak repair and emergency response products for the maritime/industrial industry. Booth 2059

• International Paint LLC is a large manufacturer and supplier of marine coatings and provides solutions for the industry's needs. Booth 1630

Photo courtesy of Alex Demyan and NewOrleansOnline.com

• ITW Polymer Technologies is a manufacturer of high quality polymer based chocking, coatings, repair compounds, and other products. Booth 1820

• Jotun Paints, Inc. is a supplier of coatings products for foreign and domestic marine and shipping, offshore, HPI, and the military. Booth 2113

• KMT Aqua-Dyne, Inc. is a manufacturer of waterblasting and surface preparation equipment including custom and standard units. Booth 2562

• Mascoat Products offers solutions with off-the-shelf insulating coatings and fully customized insulating coatings. Booth 2163

• NACE International, The Corrosion Society, is a globally recognized association for corrosion control. Booth 256

• Opta Minerals, Inc. processes coal and copper slag abrasives and distributes a line of abrasives including garnet, steel grit, and glass. Booth 3130

• PolySpec LP makes specialized marine deck coating technologies to meet requirements of offshore living and work spaces. Booth 1824

• PPG Protective & Marine Coatings supplies high performance coatings and fireproofing for marine and offshore applications worldwide. Booth 1431

• Sherwin-Williams delivers smarter asset protection with a broad line of high-performance coatings, comprehensive technical service, and a large distribution system. Booth 2749

• Sponge-Jet, Inc. manufactures clean, dry, low dust and recyclable Sponge Media abrasives and blasting systems. Booth 356

• SSPC: The Society for Protective Coatings is the only non-profit association whose sole mission is to promote and support the use of industrial coatings for corrosion protection. This is accomplished through the development of standards, training, publications, certification, advocacy, and the SSPC Annual Conference. Booth 2735

• Straaltechniek International BV offers customers built-in know-how, reliability, long operational life, and fast service. Booth 1133

• Turflex Rubber Flooring offers high performance floor covering solutions. Booth 2465

• Wheelabrator Group manufactures a full range of wheel type shot blast machines for marine applications and automated airblast solutions. Booth 378

Marinis Brothers Awarded Summit Bridge Coating Project

By Carrie Milford, PaintSquare

The U.S. Army Corps of Engineers, Philadelphia District, awarded a contract of $9,308,733.24 to Marinis Brothers Inc. (New Castle, DE), SSPC-QP 1 and QP 2 certified, for coatings work and miscellaneous repairs on the Summit Bridge, which spans the Chesapeake & Delaware Canal. The project includes recoating the 600-foot-long main span, two 251-foot-long deck truss spans, and two 302-foot-long anchor spans on the 2,058-foot-long cantilever truss bridge. The steel will be abrasive blast-cleaned to a Commercial finish (SSPC-SP 6); tested for soluble salts with as-needed remediation; and recoated with a zinc-rich epoxy primer, a polyamide epoxy stripe coat and intermediate, and an aliphatic polyurethane finish. The contract includes erecting Class 1A containment to capture the existing lead-bearing coatings.

The contract also includes applying a penetrating water repellent treatment to parapet surfaces, as well as repairing finger, expansion, and median joints.

Commercial Diving Services Wins Middle Bay Lighthouse Project

Commercial Diving Services, Inc. (Mobile, AL) won a contract of $164,137.10 from the Alabama Historical Commission for repairs and painting of the Middle Bay Lighthouse. The screw-pile, hexagonal-shaped lighthouse, located in the center of Mobile Bay, was built in 1885 and deactivated in 1967.

The project includes replacing upper tie rods, installing shaft anodes to lower tie rods, and replacing wood cross-bracing. The above water sections of the pile legs will be cleaned and coated, while bracelet anodes will be installed to pile legs and horizontal pipe struts below water. The contractor will also repair the steel brackets and clean and coat steel floor beams and brackets. The project also includes repairing miscellaneous wood, windows, and other components, as well as prepping and painting exterior wood surfaces.

Continued

Hartman Walsh Wins Rock Island Arsenal Coating Project

Photo courtesy of USACE

Hartman Walsh Industrial Services (St. Louis, MO), SSPC-QP 1- and QP 2-certified, won a contract of $4,218,882 from the United States Army Contracting Command for coatings work in four factory buildings on the Rock Island Arsenal. The Rock Island Arsenal, located on the Mississippi River between Davenport, IA, and Rock Island, IL, is the largest government-owned weapons manufacturing arsenal in the U.S.

The project involves cleaning and painting interior walls, ceilings, stairs, railings, piping, crane rails, columns, doors, frames, utilities, and miscellaneous metals in four factory buildings with a total estimated floor area of 353,000 square feet. The project includes cleaning, spot-priming, and repainting the interior surfaces with a contractor-proposed system. The project also includes handling lead-based paint, labeling piping, marking columns, and cleaning interior windows and light fixtures.

Rising Sun Secures Virginia Pump Station Contract

The U.S. Army Corps of Engineers, Savannah District, awarded a contract to Rising Sun, Inc. (Marshall, VA) for surface preparation and coating application on structures associated with the Island Creek Pumping Station at the JH Kerr Reservoir in Mecklenburg County, VA. The contract, which was set aside for Service-Disabled Veteran-Owned Small Businesses, is valued at $92,365.

The project involves coating existing bulkhead surfaces, access bridge beams, structural framing, and motor cabinet and control surfaces. The bulkhead and bridge surfaces will be abrasive blast-cleaned to a Commercial finish (SSPC-SP 6); the lifting structure, motor cabinet, and controls will be wire-brush cleaned. The bulkhead and bridge surfaces will be coated with a vinyl system; the existing coatings contain lead, necessitating containment. The lifting structure, which is currently coated with non-hazardous materials, will also be coated with a vinyl system.

BCI Builders Wins Castro Street Stair Tread Contract

The City of Mountain View, CA, awarded a $34,000 contract to BCI Builders, Inc. (Scotts Valley, CA) to coat 4,950 linear feet of stair tread surfaces on the Castro Street sidewalk. The project includes applying two coats of non-skid aliphatic polyurethane in two inch-wide strips to each stair. Coating material must comply with current VOC emission standards.

Indiana DOT Awards Tippecanoe River Bridge Repairs

Central Painting, Inc. (St. John, IN), SSPC-QP 1- and QP-2 certified, secured a contract of $592,853 from the Indiana Department of Transportation for maintenance and repairs on the truss bridge that carries SR-119 over the Tippecanoe River. The project includes cleaning and recoating 119,584 sq feet of steel surfaces. The steel will be coated with the Indiana DOT standard inorganic zinc-epoxy-polyurethane system. The contract includes erecting containment according to SSPC-Guide 6. The project also includes applying sealant to concrete surfaces.

Advanced Contracting Wins Tiber Dam Recoating

The United States Bureau of Reclamation, Pacific Northwest Region, awarded a contract of $240,476 to Advanced Contracting, LLC (Lewiston, ID) for cleaning and painting of metal surfaces associated with the auxiliary outlet works at the Tiber Dam. The dam is locat-

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ed on the Marias River in Idaho. The project includes cleaning and painting handrails, ladders, ladder cages, platforms, covers, gate liner surfaces, bonnet cover surfaces, hydraulic hoist and cylinder head surfaces, 72 inch-diameter and 22 inch-diameter steel pipe supports, and tunnel walkway supports. The steel will be abrasive blast-cleaned to a Near White finish (SSPC-SP 10) and/or power tool-cleaned to Bare Metal (SSPC-SP 11) and recoated with a zinc-epoxy-polyurethane system. The existing coatings contain lead and other heavy metals, necessitating the use of containment according to SPPC-Guide 6.

Tank Rehab to Recoat Concrete Tank

Tank Rehab, LLC (Ponte Vedra Beach, FL) was awarded a contract of $348,000 by the City of Jacksonville Beach, FL, to perform maintenance coatings work on a two-cell, 1 MG concrete ground storage tank at a water plant. The project includes ultra-high pressure waterjetting, priming, and recoating interior surfaces in one of the 500,000-gallon-capacity cells using an elastomeric urethane system. The project also includes pressure-washing and refinishing all exterior surfaces with an acrylic system.

City of Tallahassee Awards Water Tank Painting Project

Classic Protective Coatings (Menomonie, WI) won a contract of $371,115 from the City of Tallahassee for cleaning and coating the exterior surfaces of a 1 MG fluted-column hydropillar elevated water storage tank. The tank is 216 feet high and has a bowl diameter of 74 feet. The project includes brush-off abrasive blast-cleaning exterior surfaces, excluding the roof, to remove the existing green topcoat. The steel will then be spot blast-cleaned to a Commercial finish (SPPC-SP 6) and coated with a surface-tolerant epoxy spot-primer, an aliphatic polyurethane intermediate, and a fluoropolymer finish. The entire roof will be blast-cleaned to a Commercial finish and coated with a zinc primer, an aliphatic polyurethane intermediate, and a fluoropolymer finish.

Advanced Industrial Services Wins Clarifier Repair Bid

Advanced Industrial Services, Inc. (Los Alamitos, CA) secured a contract of $112,875 from the City of Yuba City, CA, to rehabilitate a primary clarifier at a wastewater treatment facility. The project includes abrasive blast-cleaning and coating skimmer arms and scum trough surfaces, as well as coating the concrete effluent launder and metal mechanisms.

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E. E. Doerr & Associates, LLC
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EPAcoat, Inc.

Continued

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Icarus Industrial Painting & Contracting Company, Inc.
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Induron Coatings, Inc.
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Kennametal Inc.
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Kimery Painting, Inc.
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Kiska Construction, Inc. (KCI)
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MCSA (Maintenimiento & Construcciones, S.A.)
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MJM Construction LLC
MST Inc (Modern Safety Techniques)
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Marinis Bros., Inc.
Mascoat Products
Mason Painting, Inc.
Matheson Painting
Matrix Service Inc.
Matsos Contracting Corp.
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McCormick Painting Company
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Municipal Tank Coatings
Murphy Industrial Coatings
N A Logan, Inc.
N G Painting, LP
NACE International-The Corrosion Society
NAG Marine
NIF Solutions
NOR-LAG Coatings Ltd.
NUCO Painting Corporation
Narkisos Inc.
National Coating and Linings Co.
National Coatings, Inc.
National Surface Treatment Center
Natrium Products, Inc.
Nelson Industrial Services, Inc.
NexTec Inc.
Niagara Coatings Services, Inc.
Northwestern Contractors Inc.
Norton Sandblasting Equipment
Novetas Solutions
O.T. Neighoff & Sons, Inc.
OPT CO
Odle, Inc.
Oesterling Sandblasting & Painting
Olimag Sand, Inc.
Olympus & Associates, Inc.

Olympus Painting Contractors, Inc.
Ontario Painting Contractors Association
Opta Minerals, Inc.
Optimiza Protective & Consulting, SL.
Orfanos Contractors, Inc.
P & S Painting Co., Inc.
P & W Painting Contractors Inc.
P S Bruckel Inc
P.C.I. International, Inc.
PCIRoads, LLC
PEC Ltd.
PPG Industries China
PROINBEL
PT Berger Batam
Pacific Painting Co Inc
Pacific Titan, Inc.
Pacific Yacht Refitters Inc.
Paige Decking
PaintEcuador
Panco Resources and Engineering Consultancy Services
Panther Industrial Painting, LLC
Panthera Painting, Inc.
Paragon Construction Services of America Inc.
Park Derochie Coatings Ltd.
Paul N. Gardner Company, Inc.
Peabody & Associates, Inc.
Pen Gulf, Inc.
Performance Blasting & Coating
Petric & Associates, Inc.
Philips Industrial Services Corp.
Phoenix Fabricators & Erectors Inc.
Piasecki Steel Construction Corp
Planet Inc
Pop's Painting
Poseidon Construction
Postel Industrial Coatings, Inc.
Pratt Equipment Rental
Precision Industrial Coatings, Inc.
Preferred, Inc.-Fort Wayne
Prime Coatings, Inc.
Pro Coat, LLC
Pro-Tect Plastic & Supply, Inc.
Professional Application Services, Inc.
Professional Tank Cleaning
Prudent Engineering LLP
Public Utilities Maintenance, Inc.
Purcell P & C, LLC
QED Systems, Inc.
Quality Linings & Painting, Inc.
Quantum Technical Services
Quincy Industrial Painting Co
Quinn Consulting Services, Inc.
R & B Protective Coatings, Inc.
RBG
RECAL RECUMBRIMIENTOS, SA de CV
RML Construction
ROs Precise Painting, Inc.
Rahm Industrial Services, Inc.
Rainbow, Inc.
Raven Lining Systems
Raydar & Associates, Inc.
Razorback, LLC
Redi-Strip Metal Cleaning Canada Ltd
Regal Industrial Corporation
Reglas Painting Company, Inc.
Rhino Linings Corporation
Righter Group, Inc.
Rockwood Corporation
Rotha Contracting Company, Inc.
Roval USA Corporation
Royal Bridge Inc.
Rust Bullet, LLC
Ryno Tools
S & D Industrial Painting
S & S Bridge Painting, Inc.
S & S Coatings, Inc.
S. David & Company, Inc.
SAFE Systems, Inc.
SAIT Polytechnic
SME Steel Contractors
SVMB
Sabelhaus West, Inc.
Saffo Contractors, Inc.
Sauereisen
Sayed Hamid Behbehani & Sons Mech. Div.
Schiff Associates
Scott Derr Painting Company
Seaside Painters & Sandblasters
Seaway Coatings, inc.
Seaway Painting LLC
Secondary Services, Inc.
Seminole Equipment, Inc.
Service Contracting, Inc.
Servicios Tecnicos Industriales y Maritimos, S.A. (SETIMSA)
Shenzhen Asianway Corrosion Protection Eng. Co., Ltd.
Sherwin-Williams Industrial & Marine Coating China
Shield Coatings & Weatherproofing
Simpson Sandblasting and Special Coatings, Inc.
Skinner Painting & Restoration
Skyline Steel, LLC
Soil & Materials Engineers, Inc.
South Gulf, Inc.
SouthEnd Painting Contractors Inc.
Southern Paint & Waterproofing Co.
Southland Painting Corporation
Spartan Contracting, LLC
Specialty Application Services, Inc.
Specialty Finishes, LLC
Specialty Groups, Inc.
Specialty Polymer Coatings, Inc.
Specialty Products, Inc.
Spectrum Painting Corporation
Spensieri Diversified LLC
Spider
Sponge-Jet, Inc.
Stanley Consultants, Inc.
Steel Management System, LLC
Stopaq BV
Structural Coatings, Inc.
Stuart Dean Company, Inc.
Superior Industrial Maintenance Co.
Surface Prep Supply
Surface Preparation & Coatings, LLC
Swalling Construction Company, Inc.
Swanson & Youngdale, Inc.
Symmetric LLC
T-Tex Equipment L.P.
TDA Construction, Inc.
TDJ Group, Inc.
TJC Painting Contractors, Inc.
TMI Coatings, Inc.
TMS Metalizing Systems, Ltd.
Tank Services fma Midwest Tank Services, Inc.
Tarpon Industrial, Inc.
Tarps Manufacturing, Inc.
Techno Coatings, Inc.
Tecnico Corporation
Testex
Texas Bridge, Inc.
The Aulson Company, Inc.
The Gateway Company
The Lusk Group
The Warehouse Rentals and Supplies
Theovas, Inc.
Thomarios
Thomas Industrial Coatings, Inc.
ThyssenKrupp Safway, Inc.
Tidal Corrosion Services LLC
Tioga, Inc.
Titan Industrial Services
Titan Tool
Tower Maintenance Corp.
Tri Star Engineering, Inc.
Tri-State Painting, Inc.
Troy Painting Inc.
Turman Commercial Painters
Turner Industries Group, LLC
UHP Projects, Inc.
US Coatings, Inc.
US Minerals/Stan Blast
USA Painting, Inc.
Unifab Industries, LTD
United Coatings Corporation
United Eagle Painting Corporation
United States Corrosion Engineers, Inc.
Universal Minerals, Inc.
Universal Silencer, LLC
Utility Service Company, Inc.
V. V. Mineral
VRSim, Inc.
Vanwin Coatings of VA, LLC
Venus Painting
Veolia ES Canada Industrial Services, Inc. Canada
Vermillion Painting & Construction
VersaFlex Incorporated
Vimas Painting Co., Inc.
Vulcan Painters, Inc.
Vulcan Pipe & Steel Coatings, Inc.
W Q Watters Company
W S Bunch Company
W W Enroughty & Son, Inc.
WGI Heavy Minerals, Inc.
WIWA LP
Washington Commercial Painters, Inc.
Washington Industrial Coatings, Inc.
Wasser High-Tech Coatings, Inc.
Wenrich Painting, Inc.
West Coast Industrial Coatings, Inc.
Westcoast Industrial Maintenance Ltd.
Western Industrial, Inc.
Western Technology, Inc.
Wheelabrator
Wheelblast, Inc.
Worldwide Industries, Inc.
Worth Contracting
Wuxi Ding Long Trading Co., Ltd.
YYK Enterprises, Inc.
YungChi Paint & Varnish Mfg
ZRC Worldwide
Ziegler Industries, Inc.