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SSPC The Society for Protective Coatings

FEATURES

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DEPARTMENTS

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STAFF

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SSPC Board of Governors Elections Open May 1

SSPC is happy to announce that there were a record number of nominations for its open Board of Governors positions this year.

A total of four positions are involved in the upcoming election: one International Member, one Other Product Supplier and two Coating Material Suppliers.

The election will open on Wednesday, May 1, at 12:00 a.m., and last until Friday, May 31, at 11:59 p.m. An email will be sent to all SSPC members who are in good standing, as well as the current Board of Governors, with a voting link designed for each individual to vote. In addition, through the month of May, there will be two reminder emails sent to any non-responding members. Each person may vote only once, and after submitting it, his or her vote is final.

Please take a few moments and vote! If you do not receive your ballot by May 2 or you have a question about the election, please contact either Terry Sowers (sowers@sspc.org) or Christine Lajzo (lajzo@sspc.org).

SSPC Accepting Scholarship Applications

The application period for SSPC's 2019–2020 scholarship program is now open.

The SSPC scholarship program, which awards several $2,500 scholarships each year, is available to any student who is beginning or continuing his or her education at an institution of higher learning in the U.S. or Canada. To be considered for the scholarship, candidates must be a high school senior planning to enroll full-time or a student already enrolled full-time at an accredited institution of higher learning that has a three- or four-year curriculum. He or she must be a member of SSPC in good standing, or a child of an SSPC member in good standing.

To apply for the scholarship, each candidate must submit the following.

- A completed application form.
- Two letters of recommendation.
- High school or college transcripts.
- A personal letter expressing why he or she deserves the scholarship and what he or she plans to do in his or her field of study.
- A current senior picture or similar type of photo.

A panel consisting of three members of the SSPC Board of Governors (designated by the entire Board) will choose the scholarship recipients. Scholarship funds will be applied to the direct costs of the student's courses. Once awarded, SSPC will work with the financial aid offices of each institution to ensure proper use of the funds.

To apply, complete the online application at www.sspc.org/scholarship-form. Applications must be received by April 30, 2019. Please contact Christine Lajzo at 412-281-2331, ext. 2231, or email at lajzo@sspc.org with any questions about the scholarship program or the application process.

SSPC CHAPTER NEWS

SSPC WELCOMES COLOMBIA CHAPTER

SSPC recently announced the approval of a new chapter in Colombia, continuing the Society's ongoing efforts in Latin America.

The chapter was approved by the Board of Governors on Feb. 9 at SSPC Coatings+ 2019 in Orlando. Colombia becomes the fifth chapter approved in Latin America since 2017. The chapter's officers are as follows.

- Chairperson Mauricio Herrera, Blasting Experts Ltd.
- Vice Chairperson Juan Carlos Velasquez, Pintuco S.A.
- Secretary Carol Liliana Leon, Blasting Experts Ltd.
- Treasurer Quilyam Casallas, ASCOR.

Mauricio Herrera, chairperson of the Colombian chapter, said in a statement, "We are very proud of presenting the SSPC Colombia Chapter. We are highly motivated to be able to extend the same benefits to the Colombian industries that SSPC offers to the North American industries in all topics related [to] corrosion, normativity, standards, training and certification [for] workers, professionals, companies, contractors and [leading] industries, [including] oil and gas; marine; metal mechanics; and mining. In general, all industries and professionals involved with surface preparation and coatings by inspiring learning, [advancing] knowledge and [elevating] performance in the industry through training, certification and education of the workforce, communication of advances in technology and promotion of the use of protective coatings."

GULF COAST CHAPTER EVENT FEATURES SSPC MTU DEMO

On March 22, the SSPC Gulf Coast Chapter held a Crawfish Boil Lunch and Learn at Wyatt

Photo courtesy of SSPC.

Compressor Service Inc. in Broussard, La., who once again lent their facility for a chapter event. The event included a demonstration of SSPC's Mobile Training Unit, conducted by SSPC instructors Eric Piotrowski and Gary Duschl. Barton Abrasives contributed the abrasive for the MTU demonstration and in addition, there were several vendor demonstrations by Bullard, Elcometer and Carlisle Equipment.

SAUDI ARABIA CHAPTER HOSTS TECHNICAL DINNER MEETING

On March 27, SSPC's Saudi Arabia Chapter conducted a technical dinner meeting in the Holiday Inn in Al-Khobar. More than 80 participants attended this event, including coating professionals from Saudi Aramco, coating manufacturers, contractors and other coating service companies. The event was sponsored by PPG-Sigma.

Mr. Munzir Khan, an engineering and projects manager with PPG, talked about types of passive fire protection coatings and addressed the latest improvements and technologies in this field. There was another presentation about multi-polymeric, high-temperature coatings delivered by Mr. Pradeep Pillai, technical support manager of PPG Middle East. In addition, Mana Al-Mansour, chairman of the SSPC Saudi Arabia Chapter, briefly updated attendees about the latest joint collaboration between SSPC and NACE to unify their services to better serve the industry.

Photo courtesy of SSPC.

SSPC and NACE International Explore Unified Efforts

SSPC: The Society for Protective Coatings and NACE International, The Worldwide Corrosion Authority, two non-profit professional associations in the field of corrosion and coating standards, training, and certification, have initiated exploratory discussions about synergistic opportunities that may exist between the two organizations.

The discussions, announced in a press release on March 18, were initiated by the board officers of each organization who recognize the complementary nature of each respective organization's mission, products and services. Both boards have approved further evaluation of the concept, and preliminary discussions have been started.

"NACE and SSPC have a long history together going back to 1950 when SSPC was founded. NACE was part of the initial group, along with AISC and others, that established the original charter for SSPC," said Garry Manous, president of the SSPC board of governors. "Although we've competed in some areas in recent years, overall we share a common goal of bettering society through the development and delivery of education and information that makes the professionals we serve the best they can be. It only makes sense that we explore whether we can better serve our mutual constituencies as partners than as separate organizations."

"Our organizations really are complementary in many ways," added Terry Greenfield, NACE International's current president. "This is an opportunity to see if bringing together the best parts of each organization will make it easier for the stakeholders we share to access everything they need in one place versus two. If we combine our best services and products, our members and customers won't have to move between two organizations and they'll know they're getting the most comprehensive options available."

Over the next few months, SSPC and NACE member leaders and staff will convene to discuss possible benefits and challenges of the concept, according to the press release. Both organizations will communicate regularly about progress and further plans.

To receive regular updates from the associations please email news@sspc.org or mediarelations@nace.org. Further updates will be included in future issues of *JPCL*.

EPA Finalizes Paint-Stripper Rule

On March 15, the U.S. Environmental Protection Agency issued a final rule to prohibit the manufacture and importing, processing and distribution of methylene chloride in all paint removers for consumer use. However, sales to contractors and other professionals will remain available.

Getty Images / Skyhobo

In January 2017, the EPA announced that it was considering a ban on the use of methylene chloride after reports determined that the common chemical in paint-strippers placed consumers, workers and bystanders at an unreasonable risk of injury.

In May of 2018, the EPA announced that it would be moving forward with that original ruling. The update at the time said that the EPA intended to finalize the methylene chloride rulemaking; was not reevaluating the paint-stripping uses of methylene chloride and was relying on its previous risk assessments; and was working to send the finalized rulemaking to the White House Office of Management and Budget shortly.

The previous risk assessment that the announcement referred to was that January 2017 determination, when the agency first proposed prohibiting the consumer and commercial paint-stripping uses for the chemical. At that time, the EPA said that dangers regarding methylene chloride include death (due to asphyxiation), liver toxicity, kidney toxicity, reproductive toxicity and certain cancers.

Since then, several paint manufacturers and box stores have discontinued the manufacturing or sale of products that contain methylene chloride, and a group of environmental and public-health advocates had notified the EPA of its intent to sue over its failure to finalize a rule.

Now, more than two years after the EPA first proposed the ban, it has released its final rule.

"After analyzing the health impacts and listening to affected families, EPA is taking action to stop the use of this chemical in paint removers intended for consumers," said EPA Administrator Andrew Wheeler.

In addition, the EPA is soliciting public input over the next 60 days for future rulemaking to establish a training, certification and limited-access program for commercial uses of methylene chloride.

The decision drew immediate backlash from public health advocates, however, as employees of professionals who still use methylene chloride remain at risk of death and long-term health effects. Various manufacturers of the methylene-chloride-based strippers have argued that the products are safe, if those using it have adequate training, and are pleased that the EPA is considering establishing a federal training and certificate program.

These prohibitions are to start 180 days after the effective date of the final rule, which will provide time for establishments selling the chemical to consumers to come into a compliance with EPA's ban. With companies already discontinuing the manufacture and sale of products containing methylene chloride, the EPA expects that many suppliers will implement the rule sooner.

Report: Thousands of U.S. Bridges Need Repairs

Just over 47,000 bridges in the United States are classified as structurally deficient and in poor condition, according to the American Road & Transportation Builders Association's analysis of the U.S. Department of Transportation 2018 National Bridge Inventory.

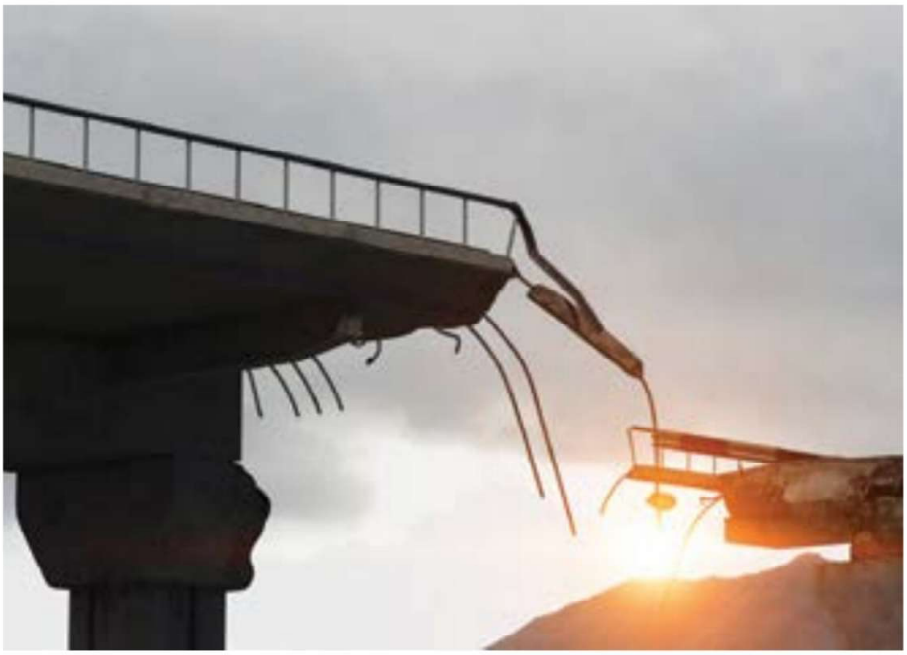
Although the number of structurally deficient bridges has declined slightly since 2017, the rate at which bridges are improved has slowed to the lowest point since the association began monitoring this data five years ago. The number of deficient spans is down roughly 7,000 from last year.

In addition to national-scale statistics, the ARTBA report breaks down structurally deficient and functionally obsolete bridges by state, and lists the most-traveled deficient bridges in the country.

The U.S. 101 bridge over Kester Avenue in Los Angeles is once again the busiest structurally deficient span in the nation. Prior to being the newcomer on last year's list, the 1959 bridge, which sees 289,000 crossings daily, had not been listed as structurally deficient in past years.

According to the report, the top five most-crossed deficient bridges in the nation are in California. The majority of the most-traveled bridges are interstates.

Following on from last year, both Iowa and Pennsylvania again took the lead in terms of total number of deficient bridges — with 4,675 and 3,770, respectively. In Iowa, that accounts for 19.4 percent of all bridges, and in Pennsylvania, 16.6 percent. Both numbers are down from last year: In 2018, Iowa sat at 20.9 percent, with Pennsylvania not far behind at 18.3. Otherwise, the top 10 states in terms of structurally deficient bridges include the following.



Getty Images / Sergey Khakimullin

- Oklahoma (2,540).
- Illinois (2,273).
- Missouri (2,116).
- North Carolina (1,871).
- California (1,812).
- New York (1,757).
- Louisiana (1,678).
- Mississippi (1,603).

Again matching last year's report, Rhode Island has the highest rate of deficient bridges, with 23.1 percent of its 780 bridges falling under the deficient criteria.

"Sadly, this report is no April Fool's joke," said Alison Premo Black, the ARTBA chief economist behind the analysis. "At the current pace, it would take more than 80 years to replace or repair the nation's structurally deficient bridges. That's longer than the average life expectancy of a person living in the U.S."

"America's bridge network is outdated, underfunded and in urgent need of modernization. State and local government just haven't been given the necessary resources to get the job done."

PAINTSQUARE COMMENTS

In Response to "FL Bill Targets Heat-Related Injury Prevention")

(*PaintSquare News*, March 15)

A Florida lawmaker brought forth a bill last week that would set a statewide standard for those working outdoors in relation to heat illness prevention, mandating that workers be given plenty of drinking water, access to shade and 10-minute rest breaks enforced after every two hours of outside labor. If the bill passed, Florida would become one of just a few states that have heat-related work mandates.

Getty Images /akarelias

Robert Bullard:

"[D]ecades ago, Florida had a very capable "state" OSHA inspection program — now completely eviscerated by the guys who have been running Tallahassee for the last 15 or so years. All they really have to do is return to the past and tweak it a bit to bring it up to technical date."

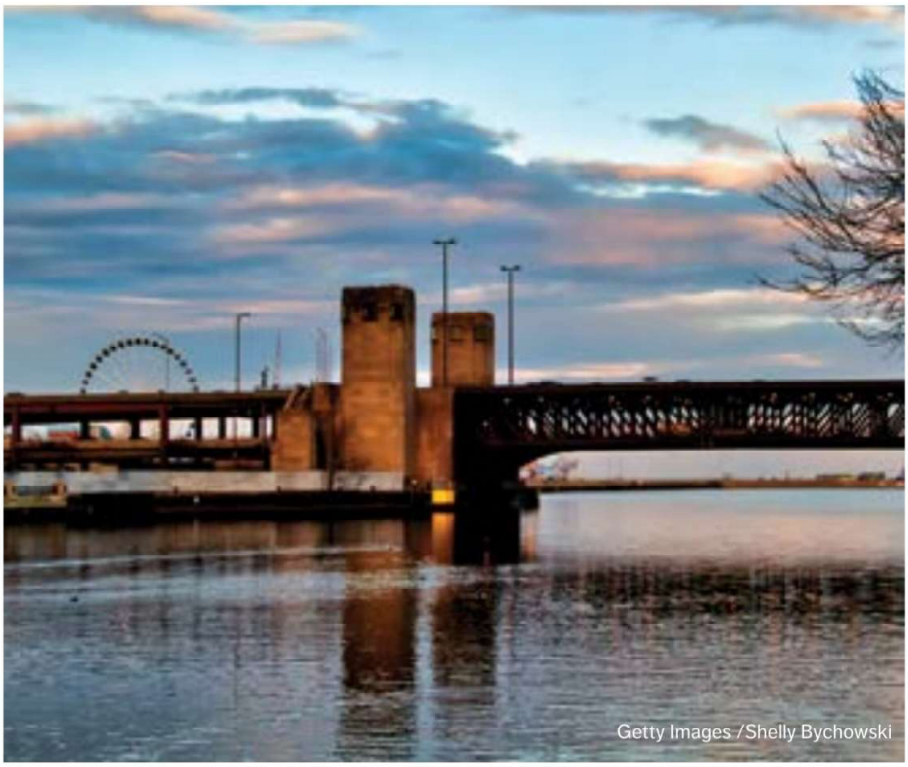
Michael Halliwell:

"My cynical side comes out to say that it'll take 10 years to get the roll-back to an effective program completed (assuming any legal challenges are settled quickly) ... so when you get there, there won't be anyone who remembers how it was done (they'll all be retired) and you'll get the old program run the new way with no experience. I doubt they'd gain anything from the exercise."

In Response to "Chicago Bridge Faces Corrosion Issues"

(PaintSquare News, March 5)

Permanent repairs on Chicago's 33-year-old Lake Shore Drive Bridge are underway roughly almost three weeks after a crack in one of the bridge's steel beams was first discovered by a crew working in the area. The damage has largely been attributed to corrosion made worse by extreme weather, according to reports.



Getty Images /Shelly Bychowski

Lou Lyras:
"The most sensible spending any government can do is spending on infrastructure. Every dollar we spend on our own infrastructure is returned to government by boosting GDP at a greater value. Government spending programs are not new, even in the past with ancient Rome, many Chinese empires, Europe in the 1950s, the New Deal in the 30s, our own Federal Highway system in the 60s and 70s ... Why haven't we passed the infrastructure bills?"

Problem Solving Forum

paintsquare.com/psf

Can water be sprayed onto an IOZ-coated surface, which has not fully cured due to low humidity conditions, to accelerate the cure?

Hugh O'Neill, Fastrack Contracting Ltd.:
"Water misting to facilitate full cure can be used in conditions of low humidity."

Larry Muzia, Exceletech Coating & Applications, LLC:
"Inorganic zinc will have curing issues whenever the humidity is below 50 percent. In areas of low humidity, it is practical to raise the humidity by either wetting the floor constantly or allowing the zinc to sit for a brief period, during which you may directly water-mist the applied IOZ. It is very important to ensure you have sufficient humidity after application and during the curing stage to ensure the IOZ properly cures to achieve the physical properties which will allow it to perform. It is known that it may appear to be nice and cured; however, appearance is not sufficient criteria. Although the MEK rub test is one test to assess cure, I prefer the pencil hardness or nickel-rub test (pass/fail)."

PAINT POLL

paintqsuare.com/poll

The Lake Shore Bridge, located in Chicago, recently underwent permanent repairs due to corrosion that was likely exacerbated by extreme weather. Do you think this will become more of a problem with infrastructure?

Yes	89%
No	7%
Other	4%

Michael Beitzel:

"It is already a problem [that] we are relying on the integrity of our inspectors rather than on the integrity of our structures."

PAINTSQUARE NEWS TOP 10

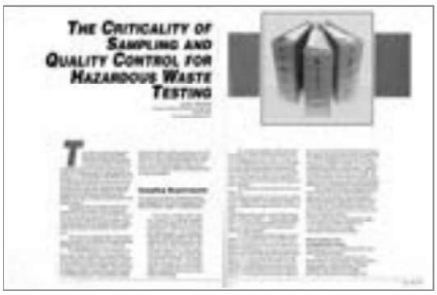
paintsquare.com/news, March 4-April 7

1. 3 NY Painting Companies Charged with Fraud
2. SSPC, NACE Explore Unified Efforts
3. Russian Ship Hits South Korean Bridge
4. Contractor Offers Cheap Border Wall Construction
5. Chicago Bridge Faces Corrosion Issues
6. EPA Finalizes Paint-Stripper Rule
7. FIU Bridge Contractor Files for Bankruptcy
8. Funding for Oroville Dam Repairs Denied
9. Storm Washes Away New Zealand Bridge
10. Border Wall Prototypes to be Demolished

THIS MONTH IN ...

1990

In "The Criticality of Sampling and Quality Control for Hazardous Waste Testing," past *JPCL* contributing editors Gary Tinklenberg and Lloyd Smith outlined the requirements and stressed the importance of testing for



lead and hazardous wastes to satisfy recently enacted EPA regulations.

1996

Consultant Alex Szokolik wrote, "The Making of a Qualified Specification Writer," to advise *JPCL* readers about what goes into a quality

specification and the attributes a specification writer must possess in order to avoid the failures that can result from a defective spec.

2003

As corrosion technology advanced in the early 2000s, a group of researchers from the National Centre for Metallurgical Research in Madrid, Spain published, "A New

Contamination Method for Testing the Effect of Soluble Salts," which described a novel test approach designed to represent the real distribution of soluble salts on coated steel.

2015

When the National Armor and Cavalry Foundation at Ft. Benning, Georgia, needed to rehabilitate seven historic military tanks, the coatings industry stepped up by donating materials, equipment and labor to get the job done. The project was chronicled in, "Coatings and Collaboration: Industry Joins Force to Restore Historic Tanks."

Fig. 1: Concrete was degraded in an unventilated manhole. Photos courtesy of KTA-Tator, Inc.

Three Failures, One Wastewater Treatment Plant

BY RICK HUNTLEY, PCS, KTA-TATOR, INC.

Sometimes it is difficult to foresee and control all of the possible environments to which a coating system may be exposed. This was the case at a wastewater treatment plant in an industrial urban area in eastern Asia. The plant had recently been constructed to handle a wide variety of waste streams, with an average daily dry-weather flow of just under 250,000 m³.

The plant treats municipal sewage that is transported via underground pipe and includes a catchment area for 16 sewage pumping stations, as well as an on-site dumping station for septic waste tankers that accounts for approximately 2 percent of the total flow through the plant. Within the plant, there were three primary treatment areas, including a coarse- and fine-screen area, a chemical-enhanced primary treatment (CEPT) area, and an ultraviolet (UV) radiation disinfection area. Each of these areas contained concrete vessels of various configurations.

The concrete vessels were coated with a polyurea elastomeric system many months after the concrete had been poured. The system included a clear epoxy resin primer supplied by a different manufacturer than the manufacturer of the elastomeric polyurea, but the primer was approved by the polyurea manufacturer for application on the project. The primer was described in the product data sheet as a colorless, two-component, low-viscosity epoxy resin.

The elastomeric polyurea layer was described in the product data sheet as a high-performance, spray-applied, plural-component, pure polyurea elastomer. The product was a 100-percent-solids material with a tack time of approximately two minutes.

Sometime after the plant was put into operation, sections of the polyurea coating system were delaminating. The coating had also ripped and blistered in various areas.

ON-SITE INVESTIGATION

The condition of the coatings on the concrete surfaces at the manhole near the municipal waste inlet and the tanker dumping station was visually examined from the top. The majority of the lining had delaminated, and bare concrete was exposed from an area several feet above the waterline up to the manhole. It appeared that the coating system was still intact in a splash area approximately 1-to-2 feet above the waterline. The delamination appeared to occur in areas above the waterline that were not in direct contact with the liquid waste, but rather in the vapor area above the space.

The concrete was severely degraded, as evidenced by the degree of exposed aggregate. The surface appeared similar to concrete that had undergone acid attack. There was a landing area in the wetwell above the waterline, where a ladder and railing that appeared to have been constructed with stainless steel were severely corroded (Fig. 1).

Fig. 2: Delaminating coating around a penetration in a CEPT area.

Fig. 3: Poor adhesion between two coats of polyurea.

Fig. 4: Delamination and discoloration above the waterline.

A CEPT channel, which was constructed of concrete including its floor, sidewalls and ceiling, was drained and examined. Square cutouts had been made on each sidewall where process water from troughs entered the channel.

The coating inside the channel was in poor condition. There was a considerable amount of coating delamination around the concrete cutouts, and closer examination revealed that the delamination was between two coats of the elastomeric polyurea coating (Fig. 2, p. 13). It appeared that at one point, an additional coat of the elastomeric polyurea had been applied around the concrete cutouts — possibly to coat newly installed concrete sections that were used to support the troughs. The delamination occurred where the newly applied polyurea was painted over the previously applied polyurea. The polyurea coating directly below the areas of delamination was intact and appeared to have adequate adhesion.

The next greatest area of concern was a horizontal line of swelling and delamination of the polyurea located directly at and above the high-water line. In this area, it appeared that the polyurea coating swelled considerably and delaminated. When the coating was cut in these areas, the polyurea lining was relatively soft as compared to other areas. The area of swelling and delamination was limited to an area of about 1-to-2 feet above the waterline.

The adhesion of the coating above the high-water line and below the waterline was subjectively assessed by cutting square patches and attempting to remove the patches with a utility knife. It was somewhat difficult to lift the edges of the patch, indicating that the coating had good adhesion, but once the edge of the patch was lifted, the rest of the patch could be removed with relative ease, which is not unusual with elastomeric polyurea and polyurethane coatings (Fig. 3).

The primer underneath the elastomeric

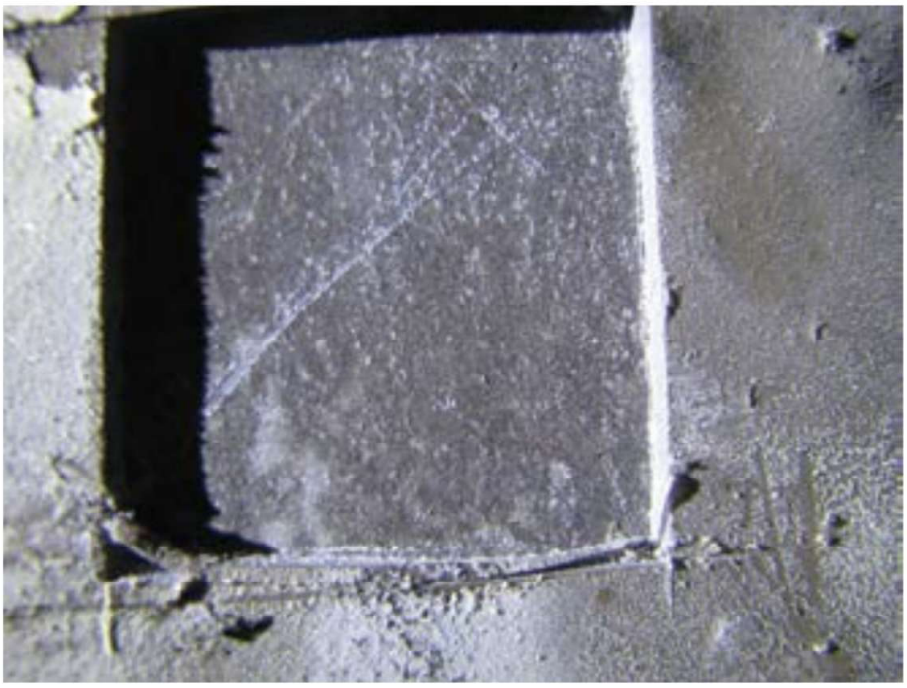


Fig. 5: In areas well above the waterline, the primer and polyurea coating were in good condition

polyurea coating was in various stages of degradation. Several feet above the waterline, when a patch of the polyurea coating was removed, a relatively smooth layer of a clear primer was exposed. That primer had experienced no visible degradation. Below the waterline, a clear primer was also exposed, but the primer had severely yellowed and in some cases was cracked and partially delaminated. The primer had also severely yellowed at and directly above the waterline, and in some cases had a pasty consistency (Fig. 4).

The appearance of the polyurea layer varied in the different areas. Several feet above the waterline, the polyurea coating had the original gray color (Fig. 5), while directly above and below the waterline it displayed a brown or tan color.

In addition to the delamination around the cutout, as well as at and directly above the waterline (Fig. 6, p. 16), there was moderate blistering of the coating on the ceiling. These blisters were intact and there was no visible delamination on the ceiling. There was also no delamination of the lining below the waterline, except where the delamination originated above the waterline and progressed slightly below it.

The lining material in one of the UV disinfection area channels was examined in an area near the top of the channel. The lining system appeared to be in good condition with no obvious coating delamination. There was a small area of blistering directly beneath a small ledge. When the coating was cut at an accessible area at the top of the channel, the coating appeared to have good adhesion, and there was a clear primer visible on the surface of the concrete.

LABORATORY INVESTIGATION

Coating samples that were removed from the plant were returned for laboratory analysis. A microscopic examination revealed that there was typically one or two layers of polyurea coating and a thin translucent primer coat present on the samples. Most notably, the samples taken from failed areas in the CEPT area were noticeably discolored and were softer than samples taken from the non-failing areas.

Fourier transform infrared spectroscopy (FTIR) revealed that all the polyurea samples were similar, but in the failing areas there was a noticeable change in the spectra that indicated that the coating had undergone chemical degradation.

Gas chromatography-mass spectroscopy (GC-MS) was also performed to identify chemicals absorbed into the coating. The analysis revealed the presence of cyclopropane and methyl acetylene, neither of which were used in the formulation of the coating.

INVESTIGATING FAILURE

Fig. 6: At the waterline, delamination and primer degradation occurred.

COATING FAILURE MECHANISM

The on-site investigation and the laboratory analysis revealed that there were likely multiple causes of the coating delamination.

The first mode of failure occurred around the manhole located directly downstream from the municipal waste inlet and the tanker dumping area. Based on the visual examination, there was likely a buildup of acidic vapors in the area, causing the concrete to degrade beneath the coating. The exposed concrete had large pieces of aggregate showing, which indicates that the cement had been attacked. Attack of cementitious surfaces is most often the result of exposure to acids. Once exposure starts, further contact with acidic substances can quickly undercut any applied coating. Because most the coating had delaminated, it was not possible to obtain samples to determine what initiated the acid attack. Investigators were also unable to determine whether the coating material was degraded by the acid, or whether the acid attack originated at holes in the coating. However, the area was not ventilated, and any buildup of acid would not easily dissipate.

The second type of failure was found in the CEPT chamber and likely involved a chemical attack of the lining system directly above the waterline, followed by swelling and eventual delamination of the coating system. In addition to the visual indications, there was a noticeable physical difference between the coating directly above the waterline and the coating further above and below the waterline. The coating directly above the waterline was noticeably softer and had a decreased tensile strength. The coating could be easily torn in the suspected area of degradation, but not in other areas. This was a clear indication that the coating had undergone chemical attack.

There were two additional indications of chemical attack revealed by the forensic evidence from the laboratory. One was discernible differences in the infrared spectroscopic analysis of the coating directly above the waterline and other areas. The infrared analysis of the coating revealed that there were chemical differences in the coating at the various locations. The spectra were compared to a control sample of the properly mixed material, and to the spectra of the two individual components of the coating. There was a distinct comparative difference in the spectral band size ratios from the coating samples from the various areas. This appeared to be the result of chemical breakdown of the coating, especially at locations near the waterline. The difference in the ratios of the various spectral bands could not be reasonably explained by variations in the mixing of the coating components. The degraded area was at the top of the waterline; if the material had been incorrectly mixed, it is unreasonable to expect that the incorrect mixing of the material

would occur in a relatively narrow spectral band, and always at the top of the waterline.

In addition to the difference in the infrared spectroscopic analysis, there was a marked color difference in the coating in the different areas. The coating had discolored appreciably directly above the waterline and was a medium brown color, which is another sign of chemical degradation. The coating further above the waterline and in other areas was gray, which was the original color of the elastomeric polyurea.

Because the chemical attack appeared predominantly directly above the waterline, it is very likely that the attack was caused by the presence of an organic compound, which are generally lighter than water and float on the top of sewer streams. This concentration of organic material can attack organic coatings.

The waste stream that entered the wastewater treatment plant was dynamic. The laboratory identified certain organic chemicals in the failed coating, but because the composition of the wastewater likely changes frequently, there was no certainty that those particular chemicals had caused the failure.

The third type of failure was an inter-coat delamination that occurred in some areas where it appeared that a second coat of the elastomeric polyurea was applied over the initial coat of polyurea. This type of delamination is relatively common. Fortunately, the coating beneath the delaminated second coat was mostly intact and in good condition. In most cases, the loosely adhered second coat could be manually removed, and the originally applied coating could be left intact since it was performing satisfactorily.

FAILURE AVOIDANCE

Two of the three types of failures could have been avoided. In the manhole, acid buildup likely created degradation of the concrete beneath the lining, entering through pinholes or holidays, eventually causing the lining to disbond. If areas will be exposed to acid-vapor buildup, either ventilation should be employed, or the area should be constructed of acid-resistant materials.

The second failure mechanism that consisted of swelling delamination in areas exposed to organic chemicals may have been more difficult to prevent, as the contents of the waste stream are highly variable and somewhat unpredictable. Possible preventative measures may include use of linings with extreme organic solvent resistance, or closer control over the waste stream to prevent entry of larger quantities of organic chemicals.

Finally, the failures that occurred in areas where one coat of polyurea overlapped another could have been prevented simply by abrading the surface in the overlap area prior to application of the second coat.

ABOUT THE AUTHOR

Rick Huntley is the technical manager of consulting services and a senior coatings consultant with KTA-Tator, Inc. He is a chemical engineer with over 30 years of experience in corrosion prevention, coating system recommendation, failure investigations and litigation support.

Courtesy of Themelis Soulounias.

HEXAVALENT CHROMIUM EXPOSURES IN INDUSTRIAL BRIDGE PAINTING

BY ALISON B. KAELIN, CQA, ABKAELIN, LLC

Hexavalent chromium (Cr^{6+}) is a toxic form of the element chromium. It is rarely found in nature and is generally man-made through an industrial process. Chromium metal is added to alloy steel (such as stainless steel) to increase hardenability and corrosion resistance. Cr^{6+} compounds may be used as pigments and as an anticorrosive agent added to paints, primers and other surface coatings. When Cr^{6+} comes into deliberate direct contact with most metals, it forms a passive oxide layer called a chromate conversion coating. Any coating with chromates, dichromates, chromium or chromic as part of its name is likely to contain Cr^{6+}. In the form of chromic acid, it is used to electroplate chromium onto metal parts such as bolts and fasteners. Chromates were also used in many military coating systems. Worker exposure to Cr^{6+} during spray application of powder coating and thermal-spray application has occurred when the base material (powder or wire) contains chromium or Cr^{6+}. Like lead and most toxic metals, Cr^{6+} can be inhaled and ingested; however, it can also be absorbed through the skin and eyes. Therefore, the mere presence of Cr^{6+} in a coating or dust can result in significant exposure to workers, the environment and the public.

HEALTH HAZARDS

All hexavalent chromium compounds are known to cause cancer. The risk of developing lung, nasal and sinus cancer increases with the amount of hexavalent chromium inhaled and the length of time the worker is exposed. In addition, it targets the respiratory system, kidneys, liver, skin, pulmonary system and eyes.

OSHA passed comprehensive health standards for hexavalent chromium in the construction (1926.1127), general (1910.1127) and maritime (1915.1127) industries in 2006 that were similar to the OSHA Lead in Construction Standard. However, these have been largely ignored by owners and industrial painters and in the author's experience, exposure to Cr^{6+} remains a likely hazard.

WORKER EXPOSURE MONITORING DATA

Similar to the lead standard, OSHA requires monitoring of potential exposure when hexavalent chromium is likely to be present. The OSHA permissible exposure limit (PEL) for hexavalent chromium is 5 µg/m^3 as an eight-hour, time-weighted average (TWA), and the action level is 2.5 µg/m^3 as an eight-hour TWA.

There is little published data on hexavalent chromium exposures during industrial painting. However, since 2015, the author has identified exposures on various bridge-painting projects (Table I, p. 20). All of the projects listed (except for Project I) had undergone "complete" rehabilitation and repainting in the 1990s to the early 2000s.

THE AUTHOR'S OBSERVATIONS: OSHA Considerations

Based on the previously mentioned data, 100 percent of the projects indicated that Cr^{6+} was present or likely to be present. This requires

WHAT YOU NEED TO KNOW

Table 1: Hexavalent Chromium Monitoring Results.

Project	Blaster Exposure µg/m³ 8 HR TWA	Vacuumer Exposure µg/m³ 8 HR TWA	Recycler Exposure µg/m³ 8 HR TWA	Laborer Exposure µg/m³ 8 HR TWA	QC/Foreman Exposure µg/m³ 8 HR TWA
Project 1	*2.84*	1.82	<0.52	<0.52	<0.52
	337.52	**252.92**			0.1
	158.88	**12.81**	0.095	.039	
Project 2	**29.5**	**80.88**	0.102		0.45
	0.69	**37.62**	0.24	.36	
	114.63	1.08	0.11	.2	
	2.2	21.09	0.103		<0.026
Project 3	0.41	.094	<.02		<.02
Project 4	**9.71**	**14.76**			.52
	0.51				
	103.6	3.37			
Project 5	**183.76**	**253.05**			**14.58**
Minimum	0.41	0.09	0.10	0.04	0.10
Maximum	**337.52**	**253.05**	0.24	0.36	**14.58**
Average	**78.69**	**61.77**	0.13	0.20	*3.91*

Bold = greater than PEL, Italic = greater than AL.

the following controls for all employees with potential for contact under the standards, regardless of any measured airborne exposures.

- Protective clothing including hand, foot and face protection.
- Separate storage areas for work clothes and street clothes.
- Training in health hazards under the Hazard Communications Standard.
- Washing facilities capable of removing hexavalent chromium from the skin (use of wipes are explicitly prohibited).
- Prohibition of eating, drinking and smoking.
- Eating and drinking areas kept as free as practicable of hexavalent chromium.

OSHA states that the employer must not allow any employee to remove contaminated protective clothing or equipment from the workplace to ensure that clothing contaminated with Cr^{6+} is not carried to employees' cars and homes, which would increase the employee's exposure as well as exposing other individuals to Cr^{6+} hazards.

QC and foremen on at least one of five projects have exposures above the PEL, with average exposures above the action level. Any employee with 30 days of exposure above the action level in a calendar year, must be provided a medical examination within 30 days of exposure and annually.

Based on the data previously mentioned, blasters, vacuumers and others in the containment system during surface preparation have a 100-percent likelihood of exposure above the OSHA PEL. This requires the use of engineering controls in accordance with the OSHA ventilation standard 29 CFR 1926.57 (unless exposure above the PEL will be for less than 30 days) and additional worker-exposure monitoring three months later.

The hexavalent chromium compliance directives and standard interpretations suggest two additional considerations.

- Personal clothing should not be worn under PPE (due to the potential for exposure through the skin and eyes).
- Tracking of Cr^{6+} outside of the containment, into the environment and other areas should be prevented using sticky mats or other forms of shoe decontamination.

It should be noted that on projects 1, 2 and 4, where multiple sampling events occurred, exposure varied widely. This might suggest that frequent monitoring should be performed throughout the project, when Cr^{6+} is present or likely to be present.

EPA REGULATIONS

EPA regulates chromium and its compounds under the Clean Air Act; Clean Water Act; Comprehensive Environmental Response, Compensation, and Liability Act; Resource Conservation and Recovery Act (RCRA); and Toxic Substances Control Act. The EPA maximum contaminant level for total chromium in drinking water is 100 milligrams per liter (or 100 parts per billion) for public water systems. Unlike lead, which stays in the top layers of soil for long periods of time, Cr^{6+} can easily move down through soil to underlying groundwater. Like lead, any release of chromium or chromium compounds (Cr^{6+}) violates the aforementioned regulations and should be prevented. If releases occur, they must be cleaned and documented. Any waste with the potential to contain total chromium must also be evaluated for its hazardous characteristics under RCRA and the Land Disposal Restrictions.

SUMMARY

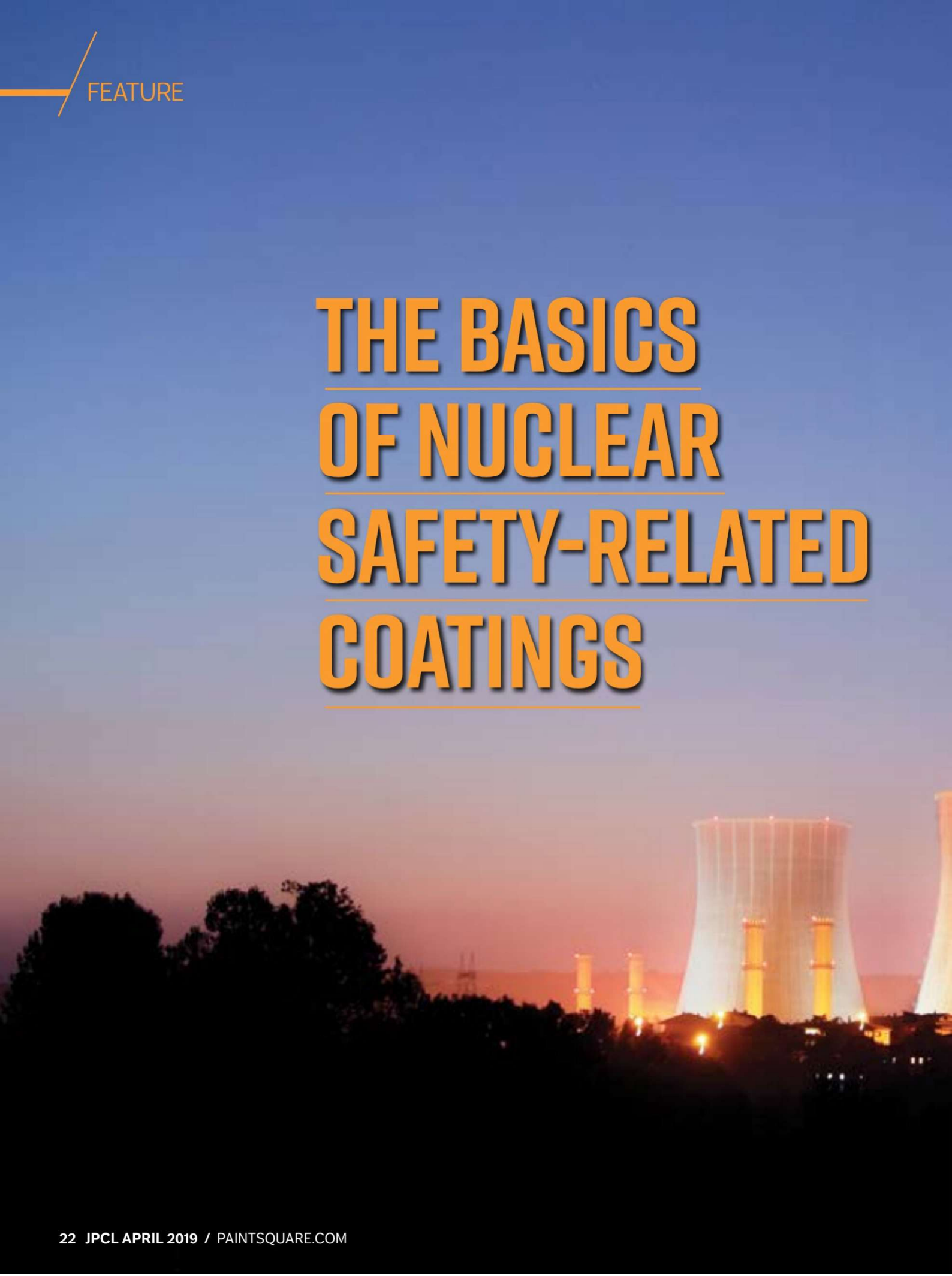
Owners should consider performing more thorough coatings surveys to determine if hexavalent chromium is present or likely to be present, and if so, include specific guidance in the specification for OSHA compliance, prevention of releases and management of chromium-containing hazardous wastes.

Contractors must evaluate employees for potential Cr^{6+} exposures throughout the project and take appropriate actions to reduce worker and environmental exposures.

ABOUT THE AUTHOR

Alison B. Kaelin is the owner of ABKaelin, LLC and a *JPCL* contributing editor who has over 30 years of health, safety and construction management experience in the coatings industry.

THE BASICS OF NUCLEAR SAFETY-RELATED COATINGS



BY DAVID A. HUNTER, PCS, POND & COMPANY, INC.

To understand safety-related coatings for use in nuclear-powered facilities, we must first understand what safety-related means regarding regulation. In nuclear facilities, "safety-related" applies to systems, structures, components, procedures and controls of a facility or process that must remain functional during and following design-basis accidents (DBA), which shut down the reactor and maintain it in a safe shutdown condition[1].

A loss of coolant accident (LOCA) is one postulated DBA condition typically assumed in which the main coolant piping somehow breaks and thus the pumps cannot circulate coolant through the core. Although in such a situation the reactor power would be reduced immediately by use of safety rods, there is a continuous supply of heat from the decaying fission products that would tend to increase temperatures above the melting point of the fuel and cladding. In a severe situation, the fuel tubes would be damaged, and a considerable amount of fission products would be released. To prevent melting, an emergency core cooling system (ECCS) is provided in water-moderated reactors consisting of auxiliary pumps that inject and circulate cooling water to keep temperatures down. Detailed analysis of heat generation and transfer is required in an application to the NRC for a license to operate a nuclear power plant — "10 CFR

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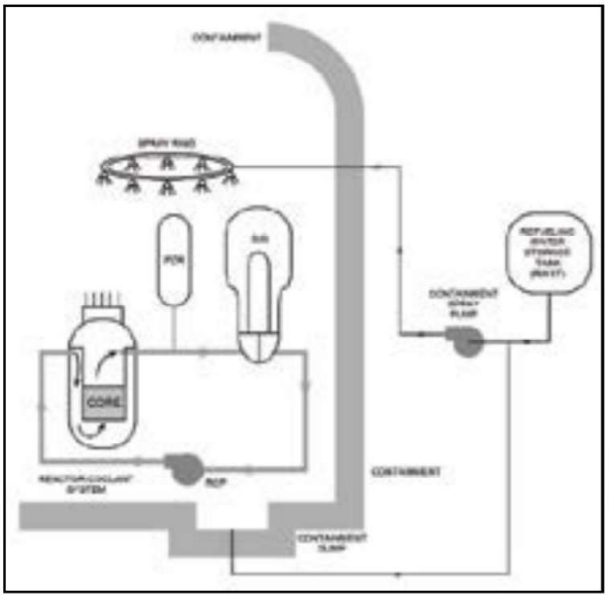

Fig. 1: View of reactor coolant recirculation system after activation. NRC/USNRC Technical Training Center.

Fig. 2: Overall view of the tank interior. Photos courtesy of the author unless otherwise noted.

Table 1: Coatings Service Level Determination[2].

CSL	Reactor–Containment Area	Safety–Related ?	COULD		
			Adversely affect operations of Safety SSC	Impair Safe Shutdown	Impair but not prevent operations of Safety SSC
I	INSIDE	YES	YES	YES	N/A
II	OUTSIDE	NO	NO	NO	YES
III		YES	YES	YES	N/A

PART 50 Domestic Licensing of Production and Utilization Facilities, Appendix K." Such a rupture would cause a reduction in vessel pressure and an increase in building pressure of the primary containment.

Upon the occurrence of either a secondary break or primary break inside the containment building, the containment atmosphere would become filled with steam. To reduce the pressure and temperature of the building, the containment spray system is automatically started. The containment spray pump will draw water from the refueling water storage tank and pump the water into spray rings located in the upper part of the containment. The water droplets, being cooler than the steam, will remove heat from the steam, and cause it to condense. This, in turn, will cause a reduction in the pressure of the building and will also reduce the temperature of the containment atmosphere (similar to the operation of the pressurizer). Like the residual heat-removal system, the containment spray system has the capability to take water from the containment sump if the refueling water storage tank goes empty (Fig. 1).

THE IMPACT OF COATING FAILURE

The initial make-up water comes from the refueling water storage tank, located outside the primary containment. Because the internals of these tanks are coated, of primary concern is the failure of the coating system resulting in clogging of the Emergency Core Cooling System (ECCS) during a design-basis accident.

How can coating failure shut down a safety system?

The ECCS system has two phases. First is the injection phase, when the pumps draw water from a large tank and pump that water into the reactor cooling system or the reactor. Second is the recirculation phase, when the pumps draw water from the containment sump after all the water has been

pumped into the containment. If the coating detached in large sections, it could clog the pumps that inject water into the reactor in phase one, or it could clog the sump pumps that recirculate water in the containment.

Although sump pumps are in the bottom of containment and have screens around them to block debris from entering the pumps, adhesion in a design-basis accident is a safety function of the protective coatings.

In order to operate a nuclear power plant, like many other things, a company must obtain a license. The license is granted on an application that is based on the design of the plant and conformance to technical standards of the design. Because nearly all operating nuclear plants in the U.S. were constructed prior to 1979, the standards that the plants were NRC-licensed under are nearly 40-to-60 years old. In some cases, the standards are no longer published. Regardless, plants must still adhere to these standards, applicable at the time their license was granted.

PROTECTIVE COATINGS

Although not applicable to most plants, ASTM D4538, "Standard Terminology Relating to Protective Coating and Lining Work for Power Generation Facilities," defines Coating Service Levels as follows.

- Coating Service Level I — Term used to describe areas inside the reactor-containment where coating failure could adversely affect the operation of post-accident fluid systems and, thereby, impair safe shutdown.
- Coating Service Level II — Term used to describe areas outside the reactor-containment where coating failure could impair, but not prevent, normal operating performance. The function of Coating Service Level II coatings is to provide corrosion protection and decontaminability in those areas outside the reactor-containment subject to radiation exposure and radionuclide contamination. Service Level II coatings are not safety-related.
- Coating Service Level III — Term used to describe areas outside the reactor-containment where coating failure could adversely affect the safety function of a safety-related structure, system or component (SSC)[3].

Determination of a coating system by location is summarized in Table 1 (p. 25).

The terminology used in the ASTM D4538 standard defines a safety-related coating system as a coating system used inside or outside of the reactor containment, the detachment of which could adversely affect the safety function of a safety related structure, system or component[3].

In ASTM D4538, coating testing

requirements are primarily prescribed for the following major categories.

- Radiation tolerances and decontamination.
- Chemical resistance.
- Physical properties.

Coating Service Level III coatings must go through similar testing and evaluation as per plant-licensing commitments and job specifications. These are coatings that are outside the containment but which in the event of a failure, could adversely affect the normal operation or orderly and safe shutdown of a plant. They are used in the following areas.

- Service water systems.
- Essential cooling water.
- Heat exchanger heads.
- Emergency diesel generator air intakes and fuel storage.
- Fuel pools and canals.
- Condenser water boxes.
- Condensate water tanks.

CASE HISTORY SCENARIO

A consulting company was contracted by a nuclear utility operator to inspect the safety-related coating system of a condensate storage tank that was safety-related. The utility had inspected the tank internally but wanted verification of findings per their quality-assurance process. The project had significant time constraints, as the plant was in a shutdown condition for refueling. The out-of-service cost of a facility like this is $1-to-2 million per day.

EXISTING CONDITIONS

Critical information was supplied by the customer including age of the coating system, the type of coating and water chemistry (which was highly controlled). The plant was designed and constructed prior to the development of the Coating Service Level classification system. The most important items to understand from an engineering perspective are as follows.

- Does the coating system condition compromise the tank integrity?
- Is the coating in a condition that could detach in a design-basis accident?
- Can the tank provide make-up water as it was designed to?
- What is the estimated service life of the existing coating?

The tank was in good condition overall (Fig. 2, p. 24). The amount of spot corrosion on the internal surfaces was rated per ASTM D610, "Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces," Rust grade 6G (1 percent), with no pitting in any areas observed. The tank water chemistry was highly controlled with the oxygen content held around seven parts per billion (ppb) (Fig. 3, p. 28). Experimentation has shown that, with other variables being held constant, reduction of oxygen content reduces the corrosion rate, and that the relationship is linear below 5.5 cc per liter[4].

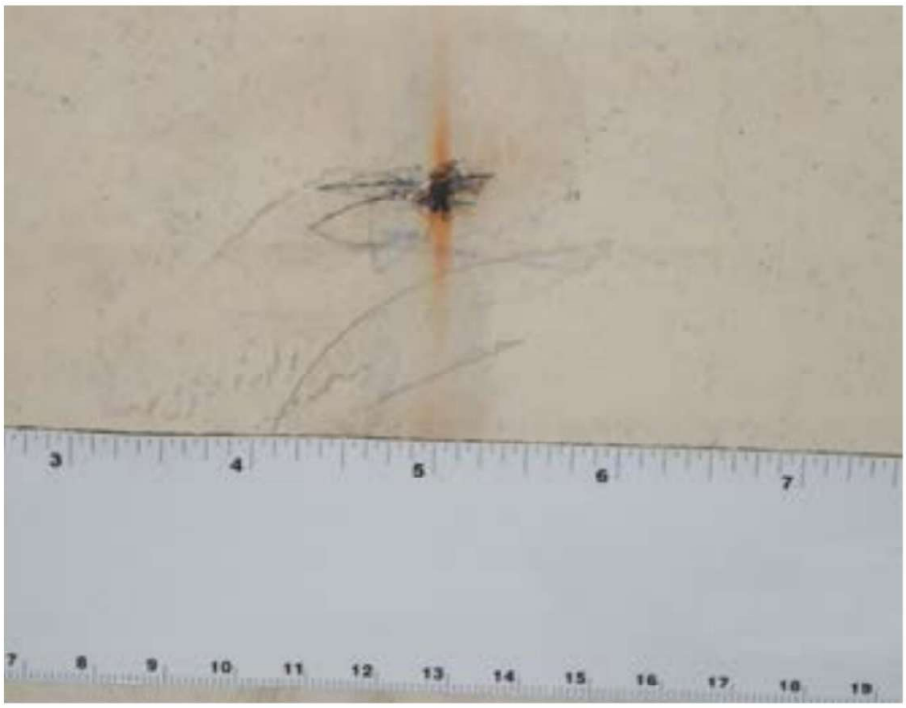

Fig. 3: View of spot corrosion above the waterline.

Adhesion was tested around areas of failure using ASTM 6677-01, "Standard Test Method for Evaluating Adhesion by Knife," which has a rating scale of 10 to 0, with 10 being considered excellent/very good. The coating system was extremely difficult to remove, yielding a rating of 10. The adhesion far exceeded the cohesive strength.

Additionally, adhesion was tested using ASTM 3359-17, "Standard Test Methods for Rating Adhesion by Tape Test. The rating system ranges from 5A to 0A, with 5A being very good/excellent. In this case, the coating system was rated a 5A.

The coating system was also measured for dry-film thickness (DFT) and compared to the recommended total DFT as per the coating manufacturer's data sheet. The reading ranged from 8.7-to-16.6 mils DFT. This was about 20 percent below the recommended film thickness of the original applied system. According to plant personnel,

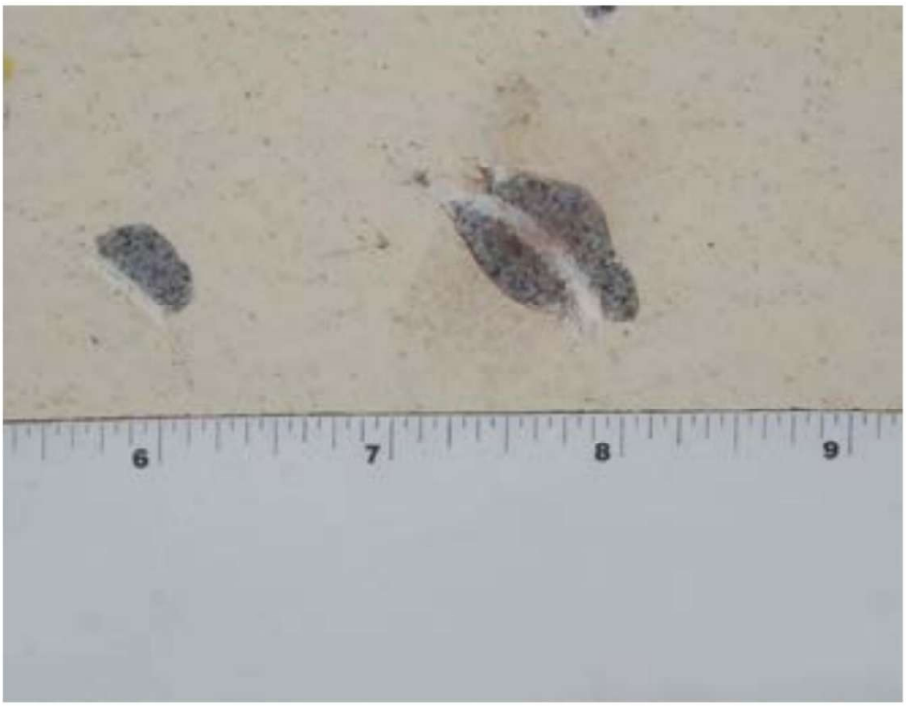

Fig. 4: Mechanical damage of the lining.

the existing coating was applied in the late 1970s during plant construction. This coating was white/off-white in color and covered the entire surface except for areas of spot breakdown. No attempt was made to identify the original generic coating type. However, at the time of inspection, plant personnel indicated from plant records that the system was a phenolic cross-linked with an epoxy, tank-internal, immersion-service coating system.

Epoxy systems harden as they age, becoming more brittle and lacking cohesive strength. As such, their typical failure mode is chipping or flaking in spot locations. However, this inspection did not identify flaking or chipping failure. The only location of chipping was due to mechanical damage to the coating system as shown in Figure 4. Based on this information, it was recommended that there be a subsequent inspection at the next out-of-service internal in 10 years.

The cathodic protection system was also surveyed by the owner, and although the measured potential was a little low by recognized industry standards, the system was still providing some corrosion mitigation to the underside of the floor.

SUMMARY

Given the coating condition, the ability to monitor the condition while in service, the inspection interval, the coating adhesion and lack of pitting, the coating system should meet the performance requirements until the next inspection

Coatings, depending on their service requirements, can have unique requirements for performance. Evaluation of existing conditions, and estimating future performance, requires a combination of knowledge, experience and training to provide recommendations that are logical and within the constraints of the regulatory environment.

ABOUT THE AUTHOR

David Hunter is a principal and coatings program manager for Pond & Company, Inc., a multi-discipline engineering firm. He graduated from Virginia Tech with a Bachelor of Science degree in civil engineering and has more than 20 years of experience in the corrosion and coatings industry. Hunter is certified as an SSPC Protective Coatings Specialist (PCS), an SSPC Level-2 Coatings Inspector, a NACE Level-III Coating Inspector, a NACE Offshore Corrosion Assessment Technician, and is an instructor for each of these programs.

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MEASURING TSA COATING THICKNESS: METHODS AND CONSIDERATIONS

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BY JAY KUNICK, FISCHER TECHNOLOGY, INC.

Thermally sprayed aluminum (TSA) is a commonly used high-performance coating for corrosion protection in atmospheric, offshore structures or marine environments. TSA coatings are suitable for structures subjected to temperatures from ambient to exceeding 120 C, where a minimum of 200 µm thickness is recommended[1]. Accuracy of the thickness measurement becomes a critical part of the corrosion-protection process in order to maximize the coating's effectiveness and longevity. An understanding of the measuring methods available is important, due to the effect the type of substrate material and other factors have on thickness measurement quality.

A TSA coating can be simply described as a melted aluminium material sprayed with specialized equipment onto a cleaned and prepared surface, where the small molten or softened aluminium particles flatten on impact and solidify to form a layer (Fig. 1).

Thermal-spray coating systems include plasma spraying, detonation spraying, wire-flame spraying, electric-arc-wire spraying, and high-velocity oxy-fuel spray. These conventional spray systems have demonstrated that they generally work well over extended periods. Nonetheless, incidents of premature coating failure due to blistering and detachment have been recorded, which indicated that coating quality and coating application procedures are extremely important factors for consideration. Reduced corrosion protection and shorter lifetimes have been attributed to porosity (in aluminium), oxide content, and non-uniformity of the TSA coatings produced by conventional spraying systems[2].

THE MEASUREMENT PRINCIPLE

There are two measurement principles used – magnetic induction and phase-sensitive

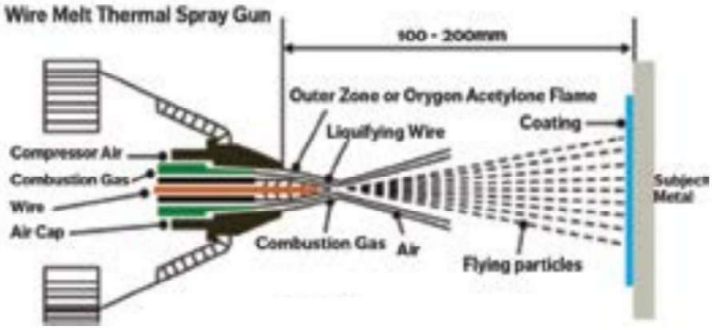

Fig. 1: TSA coating spraying mechanism. Figures courtesy of the author unless otherwise noted.

eddy current. Magnetic induction is the method used where the base material is carbon steel only, while the phase-sensitive method can be used for measuring the TSA thickness on duplex steel, stainless steel and aluminium substrates in addition to magnetic induction.

MAGNETIC INDUCTION METHOD ON CARBON STEEL

There are certain prerequisites to be satisfied before using the magnetic measurement method for TSA coatings on carbon steel. The coating must be a non-magnetic material and the base must be ferro-magnetic. Coating thicknesses up to 100 mm can be measured, depending on the specific probe used.

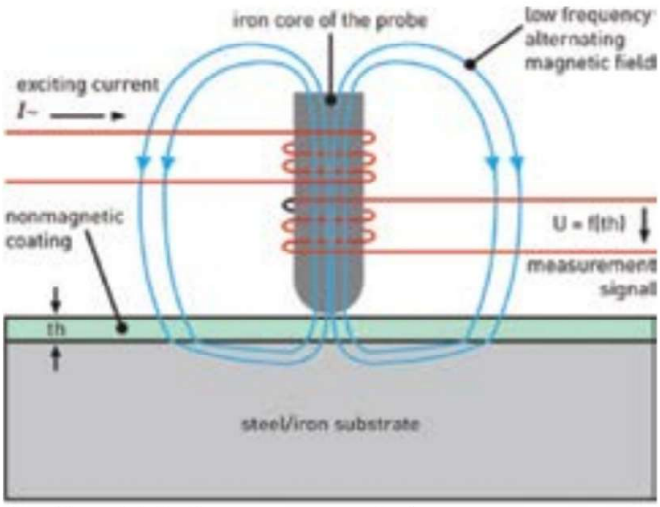

Fig. 2: Magnetic induction measurement method.

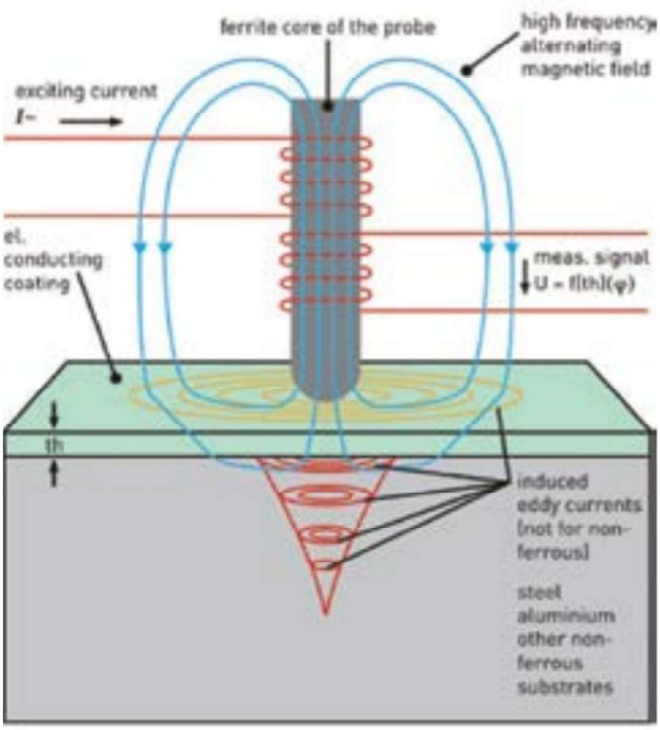

Fig. 3: Eddy current measurement signal (U) is a function of the probe (f), the coating thickness (th) and the impedance phase shirt (φ).

The basic theory of the magnetic induction method (Fig. 2) is that the probe is brought into contact with the magnetic substrate with its non-magnetic coating.

The excitation current (I~) generates a low-frequency magnetic field with a strength that corresponds to the distance between the probe and the base material. A measurement coil measures the magnetic field. In the instrument, the obtained measurement signal (U) is converted into the coating thickness values via the characteristic probe output function (f), i.e., the functional correlation between the probe signal and the coating thickness (th).

PHASE-SENSITIVE EDDY CURRENT METHOD ON STAINLESS STEEL

A prerequisite to be satisfied in this case is that the coating must be a conductive material whereas the base can be nonconductive, conductive or magnetic. Coating thicknesses of up to ca. 700 µm can be measured.

The basic theory of the phase-sensitive method (Fig. 3) is that the probe is brought into contact with the electrically conducting coating, where an alternating magnetic field induces eddy currents in the substrate and coating (eddy currents being more intense in higher conducting materials). The thickness of the coating material changes the average conductivity and hence the eddy current density. An electronic readout converts the signal feedback to thickness.

MEASURING INFLUENCES

As described above, there are specialist probes and measurement devices for accurately measuring the thickness of TSA coatings. When using the chosen device, it is important to be aware of the effect of the various measuring influences vis a vis the base material, as shown in Tables 1 and 2 (p. 34).

Table 1: Measurement Methods Available for Base Materials.

Base material	Magnetic induction	Phase sensitive-EC
Carbon steel	Yes	Yes
Duplex steels	No	Yes
Stainless steels (Austenitic)	No	Yes
Aluminium	No	Yes

CALIBRATION

From the tables, it can be seen where calibration of the TSA measurement probe is necessary; for example, with the phase-sensitive eddy current method, the porosity of the TSA coating and its electrical conductivity have a large impact on the measurement. Calibrating the probe is usually easily done as the user is guided step by-step through the process by the instrument's software. Measurements of the base material (e.g. stainless steel) are taken, then of an over-thick TSA coating (material depending, but greater than 1 mm, on the same steel base);

Table 2: Impacts of Measurement Methods on Base Materials.

Base property	Magnetic induction	PS-EC
Roughness of substrate	Large scatter	Small impact
Roughness of TSA coating	Large scatter	Small impact
Curvature	Large scatter	Small impact
Porosity of TSA coating	No impact	Large impact via conductivity of coating
Permeability of base material	Large impact	Small impact
Electric conductivity of TSA coating	No impact	Large impact
Temperature of environment and sample	No impact	Large impact via conductivity of coating

and finally, measurements are taken on real samples at the higher and lower ends of the expected range.

Specialist probes and handheld measurement devices can confirm an applied TSA coating's thickness, and hence protection capabilities over its lifetime, which has been predicted to be more than 30 years for 200-um-thick TSA — far longer than an organic coating. Longevity brings lower costs, as often the TSA coating can last longer than the substrate material itself, particularly if there is an understanding of the influences of the substrate material on the measurement method used and of the importance of proper calibration, in determining that actual film thickness applied.

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Where Did Those Towers Come From?

BY CURT HICKCOX, PCS, PUBLIC UTILITIES MAINTENANCE, INC.

You might think that all electric transmission towers are created equal. Wrong! There is an almost infinite number of engineered configurations for the hundreds of thousands of towers and poles comprising our electric grid, and when the various materials used for corrosion protection and aesthetics are included, the combinations are even greater. Height, steel member size, structure type and other design considerations are all dependent on circuit load, location, topography, budgets and other factors. During the service life of a transmission structure, these factors can change, resulting in necessary modifications or upgrades to maintain grid reliability. Regulatory

revisions may call for re-engineering as well. Maintenance for long-term asset protection is also a major consideration.

The author's contracting company was approached by a major electric utility with a challenging project. They owned two very tall (approximately 350 feet), double-circuit high-voltage (115,000 volts each), lattice steel transmission towers, each over 50 years old and located on both banks of a waterway leading to a major U.S. shipping port. They had previously been painted orange and white in accordance with Federal Aviation Administration guidelines for obstruction marking but had deteriorated to the point of loss of most coating integrity and color value, as well as being heavily corroded. These towers were well past the optimal time for a repaint, but for regulatory compliance and structural preservation, immediate recoating was

Fig. 1 (Below): Colors for this project were selected per Federal Standard 595 and the stripe pattern was specified as well. For compliance, the colors applied were 12197 red/orange and 17875 bright white, in a high-gloss finish. Photos courtesy of the author unless otherwise noted.

Fig. 2: The enclosure structure was moved down the tower as the work progressed and was lowered to the base of the tower at the end of each day.

required. The utility originally planned on installing strobe lights to comply with the FAA standard rather than repaint, but the amount of corrosion was so significant, they decided recoating was necessary for long-term preservation of the steel.

Aside from the size, condition and location of the towers, there were other critical conditions to be considered. The previously applied coatings were heavily pigmented with lead that had to be controlled during surface preparation and at least one side of the electric circuits was to remain energized at all times throughout the project. These factors severely impacted the types of enclosure structure and associated work procedures possible. Together with the utility's transmission maintenance engineer and paint manufacturer, a coating system was developed that allowed for surface preparation in accordance with SSPC-SP 2, "Hand Tool Cleaning" and SP 3, "Power Tool Cleaning" to remove only delaminating existing coatings and loose rust while still providing the long-term surface protection, color and gloss required.

In addition to the challenge of requiring continuous operation of at least one energized circuit, the size of the towers did not allow for continuous installation of the enclosure structure due to wind-load issues — it had to be designed for daily raising and lowering without the need to completely rebuild each day, which would have been time prohibitive. The enclosure also had to be designed to allow work to be performed safely in proximity to the live circuit and not encroach on the OSHA mandated Minimum Approach Distance (MAD). No body part, equipment piece, hose, cable or tarps were permitted within this limit of approach to remove any possibility of electric arc flash. All work was performed while climbing; no man lifts were involved.

The specific complexities of this project required a contractor who was experienced and specialized in energized transmission-tower painting using in-house painters with extensive knowledge in all facets of this work. Aside from the obvious proficiency in surface preparation and coating application, each crew member was certified in tower climbing and tower rescue and had received annual specialized training in electrical safety, in addition to lead awareness, PPE training and OSHA-mandated training. It takes several years for a painter to garner the skill set required to perform this particular type of work, especially on a project of this scope, with a minimum of three-to-five years of painting electric transmission towers (more than 3,000 hours) before working in the energized zone. Painters with this level of specific experience and training are not readily available through conventional employment channels, and significant resources for training — both classroom and on-the-job — are required. SSPC QP1 and QP2 certifications are additional insurance for a safe and successful project. The implementation of a proven corporate health and safety program, expressly developed for energized transmission structure painting, was critical to the safe completion of this project.

Due to the utility's operational requirements, each tower had to be completed within 10 days. For safety reasons, only one tower was worked on at a time. A crew of 16 was mobilized, bringing all materials and equipment directly to the tower site. A separate staging area was set up at each tower as the distance to travel to the nearest bridge and across the river was significant. Once on-site, the author's company designed, tested and constructed the actual enclosure to be used to comply with the environmental and worker-safety issues associated with the removal and collection of the delaminating existing lead pigmented coatings. Once the utility approved the design, erection of the enclosure was performed and the surface preparation and coating application were underway. A quality-control plan was established prior to the

commencement of the project and daily inspections were performed to ensure that environmental conditions, surface preparation and film thicknesses were all within specification. Daily tailboard meetings were held prior to the start of work each morning to discuss the hazards, work plan and any other project-related issues. The daily work plan, including each painter's placement on the tower, individual tasks and operational objectives, was determined at each morning's meeting. An environmental-compliance plan was also developed for the project and implemented to ensure conformance with all utility and regulatory requirements.

As mentioned previously, a combination of hand- and power-tool cleaning was performed per SSPC-SP 2 and SP 3 to remove all peeling and flaking existing paint, as well as loose corrosion material. Solvent cleaning in accordance with SSPC-SP 1 was also performed as required to remove dirt, bird droppings and other soluble contamination. No abrasive blasting was performed which minimized airborne dust and significantly reduced waste, as no blast media was involved. All workers used proper PPE and followed lead-safety protocols.

The towers were worked on in sections. The enclosure structure was moved down the tower as the work progressed and was lowered to the base of the tower at the end of each day. At the top of the tower the enclosure was configured so that only the arms on the one de-energized circuit side were covered. It was installed and secured so that the MAD on the live side was observed at all times. The waste was collected, removed from the enclosure with HEPA-equipped vacuums, placed in secured and marked drums and was disposed of at the end of the project by the utility through their hazardous-waste stream.

The coatings used on this project were conducive to application by paint mitt, the preferred method of application for lattice steel, so spray application was not involved. Though overspray was not a concern, coating application was still performed within the enclosure. Even when applied by mitt, at 350 feet in the air, paint can travel a long way and the enclosure eliminated this potential issue. Applying the coating while inside the enclosure also ensured that paint would not drip into the water, onto the surrounding ground or onto passing ships and boats.

The coating system consisted of one full coat of 100-percent-volume-solids epoxy penetrating sealer, followed by one full coat of silicone alkyd enamel (30-percent-silicone-resin dry-grind formulation) colored to FAA-compliant airway white and airway orange. The FAA specifies airway obstruction-marking requirements, including color and gloss levels in their Advisory Circular 70/7460-1K and stipulates that generally structures over 200 feet in height require lights or be marked (painted). Colors for this project were selected per Federal Standard

595 and the stripe pattern was specified as well. For compliance, the colors applied were 12197 red/orange and 17875 bright white, in a high-gloss finish. All coatings were VOC-compliant as well.

Every square inch of both towers had to be touched by a painter three times — to prepare, seal and finish — and as previously stated, the entire tower was accessed by physically climbing and maneuvering to each steel member all while remaining 100-percent tied-off for fall protection. No mechanical lifts were used — all equipment and material had to be carried or lifted up the tower by hand. The number of ropes and cables was minimized due to the proximity of the energized wires.

The towers were completed on schedule with no safety incidents or quality issues. There were utility representatives on-site throughout the project to assist with logistics and observe progress. The project was performed in full compliance with all OSHA and EPA regulations and all of the power company's objectives were met.

Before the job began, there were two towers, and though very large in stature, they were fairly unnoticeable due to their deteriorated appearance. After completion, and to the chagrin of some area residents, they now held a commanding appearance that couldn't be missed. Some members of the surrounding public asked (somewhat loudly in a few cases), "Where did those towers come from?"

ABOUT THE AUTHOR

Since 2007, Curt Hickcox has been vice president of Public Utilities Maintenance, Inc., an SSPC-certified QP1, QP2 and QS1 contractor specializing in painting, corrosion control and mitigation of electric transmission towers and poles, and substation structures and equipment. He has previous experience with coatings companies Keeler and Long, and PPG Protective and Marine Coatings. Hickcox previously served as chair of three NACE and IEEE committees responsible for corrosion control of transmission and distribution (T&D) structures. He is an SSPC Protective Coating Specialist (PCS), an SSPC Quality Control Supervisor (QCS)and a NACE Level I CIP. Hickcox is the author of papers and articles relating to T&D corrosion issues and has presented at multiple industry conferences. ***JPCL***

THE HOHE SEE WIND FARM:

Germany's Largest Offshore Energy Project

BY *JPCL* STAFF

Editor's Note:
SSPC's annual Structure Awards recognize the work of teams of contractors, designers, end users and coating manufacturers for excellence on protective coatings projects. The 2019 Structure Awards were presented at SSPC Coatings+ 2019 in Orlando, Feb. 11, and each award-winning project will be profiled in this series.

Fig. 1: The EnBW Hohe See wind farm is the largest planned offshore energy project in German history. Photos courtesy of Smulders unless otherwise noted.

Fig. 2: A total of 12 different coating systems were applied to steel substation components.

The Eric S. Kline Award is presented for outstanding achievement in industrial coatings work performed in a fixed shop facility. Named after the late industry pioneer Eric Kline of KTA-Tator, Inc., the award recognizes projects involving either repair work or new construction.

The 2019 Eric S. Kline Award went to the Hohe See Offshore Wind Farm substation topside construction project.

The Hohe See Wind Farm, owned by German utility company EnBW, is the largest planned offshore wind project in German history, covering an area of about 40 square kilometers in the German exclusive economic

Fig. 3: Individual components were fabricated and coated at different facilities, then transported to a separate site for construction.

PROJECT AT A GLANCE

Start Date: March 2016
Completion Date: June 2018
Facility Owner: EnBW
Contractor: Smulders
Coatings Supplier: International Paint LLC (AkzoNobel)

From left: Garry Manous, president, SSPC; Larry Haack, business development manager, International Paint; and Ronny Van Poppel, project staff member, Smulders. Photo courtesy of SSPC.

Fig. 4: The 55-meter-long, 30-meter-high substation totaled over 4,500 tons in weight.

zone of the North Sea. It will comprise 71 wind turbines with a total capacity of 497 megawatts, which will be connected to the German high-voltage grid via the BorWin3 converter platform. Expected to be brought online before the end of 2019, it will produce enough electricity for nearly 560,000 households and reduce CO^2 emissions by over 1.5 Mio tons per year, according to EnBW.

Steel construction contractor Smulders designed and produced steel for construction of the topside and jacket of the wind farm's new substation. At 55 meters in length and 30 meters high, and with its 4,500 tons (including 2,150 tons of steel), three transformers and three shunt reactors, Hohe See is the largest substation topside ever built by Smulders.

Fig. 5: The completed substation was transported offshore for installation in June of 2018.

Smulders built the 2,100-ton jacket and eight piles totaling 1,280 tons at its production facility in Vlissingen, The Netherlands. The topside was made of large steel components (for example, 26-by-26-by-12-meter sections) covering roughly 8,000 square meters per component, each being blasted and painted at once. Different parts were painted at several locations and then assembled, welded and repainted to a final result.

In total, Smulders crews applied 12 different coating systems from International Paint — totaling 63,440 liters of paint — on the complete topside. The main system used for most steel included a zinc-rich epoxy primer applied at 60 µ, two coats of a high-build epoxy midcoat at 1,500 µ each, and an 80-µ polyurethane finish coat.

Surface preparation and application followed proper industrial standards, including those from Norsok, ISO and SSPC. To adhere to environmental regulations, as well, VOC content was taken into account during coating selection.

The substation was installed on the jacket foundation and transported to its final location in late May of 2018. In mid-June, the substation set sail towards its destination, approximately 98 km off the German coast and 90 km north of Borkum island in the North Sea.

2019 ANNUAL DIRECTORY OF INDUSTRIAL PAINTING CONTRACTORS

Getty Images / Oakeyphotos

The 2019 *JPCL* Annual Directory of Industrial Painting Contractors includes detailed information about painting contractor companies located primarily in North America, but also around the world. Listings are displayed in alphabetical order by country, and then by state or province. The Directory includes information on each firm's experience with specific types of structures and specialty processes for coating removal and application, as well as current SSPC certifications. Contact information accompanies each listing.

The information presented was obtained through a survey conducted among painting contractors known to *JPCL*. Verification of accuracy of the information submitted was not performed. Contractors have paid an advertising fee for oversized entries. Otherwise, a firm's information is entered at no cost.

An expanded edition of the Directory appears on www.paintsquare.com/bg, the online home of *JPCL*. In addition to the information presented in the print edition, the fully searchable online edition of this directory contains supplemental information including a firm's experience with other industries and specialty services.

If your company does not appear in these pages, you can still submit information for the 2019 online edition by contacting Nichole Altieri, business administration manager, *JPCL*, at naltieri@technologypub.com.

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Blk 291E, #04-07, Bukit Batok St 24, Singapore, 654291, Singapore; 65-9-2739939; chuat89@gmail.com

SOUTH AFRICA

Maxlife Coatings
1 Short Str Bryanston East, Sandton, 2191, South Africa; Brannin Schorn; 27-76-998-1556; bran@maxlifecoatings.co.za

SOUTH KOREA

BC Taechang Industrial Corporation
76-46, Kimhae-Daero 2579, Kimhae, Kyungnam, 50932, South Korea; 82-51-442-6191-2; info@bctc.co.kr

SPAIN

Gaditana de Chorro Y Limpieza, S.L.
Pol Ind. Tres Caminos, Pto. Real (Cadiz), España, 11510, Spain; Jaime Moreno Dorado; 34-956-888-193; chorro@gaditana.com

Proinbel
Plata 24-26 Poligono San Cristobal, Valladolid, 47012, Spain; 34-98-339-5644; proinbel@proinbel.com

Bridge & Highway
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Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

TAIWAN

Megaway Corporation
1/F, 219 Xinhu 2nd Rd., Taipei, 11494, Taiwan; Patrick Tsai; 886-2-2796-8038; megaway@megaway.com.tw

THAILAND

Union Coating Company Ltd.
128/512 M.1 Teparak Rd Km 21 Bangsaothong, Samutprakarn, 10570, Thailand; 66-2-315-4801; marketing@unioncoating.com

TURKEY

Protech Endustryel Teknik Koruma LTD
Perpaticaret Merkezi B Blok KAT:11 NO: 1659 Okeydani Sisli, Istanbul, 34384, Turkey; Ebubekir Gurbuz; 90-532-405-8511; info@protechendustriyel.com.tr

STM Coatech
kurtulus mah garip sk no 1 kat 2 ofis 4-5 Adapazari, Sakarya, , 54000, Turkey; seda omercikoglu; (90534) 745-1980; info@stmcoatech.com

UNITED KINGDOM

Corroserve
Forster St., Leeds, LS10 1PW, United Kingdom; Rob Cole; 44-1132-760760; info@corrocoat.com

Counter Corrosion Ltd.
P.O. Box 18, Thornhill Dewsbury, W. Yorkshire, WF12 0XD, United Kingdom; Miles Smith; 41-7775-898505; malcolm.smith17@btconnect.com

DS Coatings
29 Briggs Avenue, Middelsbrough, TS66XL, United Kingdom; darren screen; 44-0738-8040040; d.screen@hotmail.com

Rhinoceros Ltd.
Huntingdon Works, Huntingdon Rd., East Finchley, London, N2 9DX, United Kingdom; Duncan J. MacLean; 44-7940560766; contracts@rhino247.co.uk

USA - ALABAMA

Alabama Painting, Inc.
3021 Central Ave., Muscle Shoals, AL, 35661; Sharon Bolling; 256-383-2462

Blastech Mobile LLC - a TF Warren Company
12400 Highway 43 North, Axis, AL, 36505; Chad Odom; 251-709-5267; chad.odom@tfwarren.com

Industrial Coatings Group, Inc.
51 County Road 935, Jemison, AL, 35085; Mike Jezdimir; 205-688-9004; m.jezdimir@hotmail.com

Tank Pro, Inc.
5500 Watermelon Rd., Northport, AL, 35473; Robert Anderson; 205-750-0444; robert@tankproinc.com

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Water Tanks/Works
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Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Vulcan Painters, Inc.

PO Box 1010, Bessemer, AL, 35021;
Jeff Theo; 205-428-0556;
jtheo@vulcan-group.com

SSPC CERTIFICATIONS: QP 1 | QP 2 | QP 3 | QP 8 | QP 9 | QS 1

ALASKA

Ace Dragon Coatings & Foam Inc.
PO Box 1486, Kenai, AK, 99611; Winston Gillies;
907-398-6247; winston@ace-dragon.com

Joe Schwierking Inspection (JSI)
176 Pond Reef Rd., Ketchikan, AK, 99901;
Joe Schwierking; 907-617-3035; jsi-painting@att.net

Kane, Inc.
P.O. Box 200907, Anchorage, AK, 99520;
Tim Kane; 907-258-9449; tskane@acsalaska.net

ARIZONA

Approved Painting LLC.
4360 E. Pinto Ln., Tucson, AZ, 85739-9083; Bill Bettcher;
520-825-9596; approvedpainting@msn.com

Arizona Coating Applicators, Inc.

3531 W. Lower Buckeye Rd.
Phoenix, AZ 85009
Nick Androsiuk; 602-263-9065
administrator@azcoating.com
Nick@azcoating.com

Arizona Coating Applicators

B & W Distributors, Inc.
PO Box 21960, Mesa, AZ, 85277; Scott Blake;
480-924-8883; info@bwdist.com

C & L Electrostatic Painting
P.O. Box 27005, Tucson, AZ, 85726; Craig or Linda Lyons;
520-882-5480; candlpainting@msn.com

JPCI Services
4702 E. Virginia St., Mesa, AZ, 85215; Beckey Durfee;
480-986-1212; bdurfee@jpciservices.com

Murphy Industrial Coatings, Inc.
50-B West Hoover Avenue, Mesa, AZ, 85210;
Gilles Bussieres; 480-981-0185; gilles@murphy.ac

Riley Industrial Services, Inc.

12555 West Butler Dr, El Mirage, AZ,
85009; Ralph Doolin; 505-327-4947;
ralphd@rileyindustrial.com

RILEY INDUSTRIAL SERVICES, INC.

SSPC CERTIFICATIONS: QP 1 | QP 2

Ullrich Construction Services LLC
1857 S. Rincon Rd., Maricopa, AZ, 85239; Joseph G. Ullrich;
520-251-3313; jgullrich@yahoo.com

ARKANSAS

Blankenships Labor
22391 Butler Ford Drive, Springdale, AR, 72764; Doug
Blankenship; 479-304-6605; dblannenship@msn.com

CALIFORNIA

AIC Coating Services, Inc.
40682 Aetna Springs St., Indio, CA, 92203; Bob Chambers;
909-938-2603; rwchambers@prodigy.net

Andy's Painting
2331 Carleton St., Berkeley, CA, 94704; Ender Sahin;
510-530-9679; andy@andyspainting.biz

Annex Paint
7450 Reseda Blvd., Reseda, CA, 91335; Greg Saunders;
818-439-9297; greg@annexpaint.com

Applied Coatings & Linings Inc.
3224 N. Rosemead Blvd., El Monte, CA, 91731; James
Horton; 626-280-6354; info@appliedcoatings.com

Baggenstos & Assoc. Inc.
1814 B Empire Industrial Ct., Santa Rosa, CA, 95403;
Bruce Baggenstos; 707-576-7774;
bruce@baggenstospainting.com

Blastco Inc. California - a TF Warren Company
11905 Regentview Ave., Downey, CA, 90241; Bob Kelley;
562-231-5485; bob.kelley@tfwarren.com

BM Lynn Painting Inc.
4324 Pinell St., Sacramento, CA, 95838;
Rigo Alcantar; 916-920-4000; info@bmlynnpainting.com

The Brushworks
4145 Santa Fe Rd., Ste. 2, San Luis Obispo, CA, 93401; Wayne
johnson; 805-541-6008; thebrushworks@sbcglobal.net

California Engineering Contractors, Inc.
20 Happy Valley Rd., Pleasanton, CA, 94566; Robert Iken-
berry; 925-461-1500; rikenberry@cecmain.com

Certified Coatings Company, Member of the Muehlhan Group
2320 Cordelia Road, Fairfield, CA, 94534; David Brockman;
707-639-4414; brockman@muehlhan.com

Coastal Decking Inc.
2050 Wilson Ave., National City, CA, 91950; David Balk;
619-447-0567

Commerce Coatings Services Inc.
4791 Granada Dr., Yorba Linda, CA, 92886; George Nichol;
951-591-0916; george@commerceservices.biz

HiTech Painting Inc.
431 W. Douglas Ave., El Cajon, El Cajon, CA, 92020; Mark
Heuslein; 619-456-9007; camille@hitechpaint.com

Jerry Thompson & Sons, Inc.
3 Simms Street, San Rafael, CA, 94901; TJ Sasan;
415-454-1500; tim@jtspainting.com

KIJ Inspection, Inc
6544 Seaman St, San Diego, CA, 92120; Dave Kijowski;
760-622-8011; office@kijinc.com

KM & Co. Professional Painting
778 Perkins Way, Sacramento, CA, 95818; Keith Mundy;
916-416-5638

KR Surface Industries
180 Constitution Drive #5, Menlo Park, CA, 94025;
John "Jay" Koval; 650-330-1584; info@krsurface.com

Murphy Industrial Coatings, Inc.
2704 Gundry Ave., Signal Hill, CA, 90755; Steve Moore;
562-427-7720; smoore@murphy.ac

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National Coating & Lining
26713 Madison Ave, Murrieta, CA, 92562; Tom Unsell; 951-471-3388; stephen@nc-lc.com

National Sandblasting Co., Inc.
7101 S. McKinley Ave, Los Angeles, CA, 90001; Kelly Bruton; 323-753-3281; info@nationalsandblasting.com

Naval Coatings, Inc.
3475 E Street, San Diego, CA, 92102; Dan McCaughin; 619-234-8366; dan@navalcoating.com

Pacific Coast Contracting Services, Inc.
11574 Seaboard Cir., Stanton, CA, 90680; Jeff Andrews; 714-897-8000; jra@pacificcoastcontracting.com

Permacolor Powder Coatings
1020 Cindy Lane, Ste. #8, Carpinteria, CA, 93013; Armando Ramirez; 805-684-3662; info@permacolorinc.com

Raider Painting Co.
PO Box 2898, Merced, CA, 95344; Estimating Department; 877-724-3371; estimates@raiderpainting.com

Redwood Painting Co., Inc.
620 West 10th Street, Pittsburg, CA, 94565; Charles Del Monte; 925-432-4500; charlesd@redwoodptg.com

San Diego Powder Coating
1710 N. Magnolia Ave., Ste. 102, San Diego, CA, 92128; Jeff Payne; 619-408-2563; jpayne@sandiegopowdercoating.com

Schaper Painting
1177 North 15th St., San Jose, CA, 95112; Jeff Brew; 408-591-7187; jeff.brew@schaperco.com

Simpson Sandblasting & Special Coatings, Inc.
14665 Rancho Vista Dr., Fontana, CA, 92399; Robert Elam; 909-829-0000; belam@simpsonsandblasting.com

Southbay Sandblasting and Tank Cleaning Inc.
30th Street, National City, CA, 91950; Jason Pita; 619-238-8338; jason.pita@sbsbtc.com

Southern Paintings Inc.
1048 Irvine Ave. #442, Newport Beach, CA, 92660; Bob Fleming; 949-631-6600; southern777@sbcglobal.net

Summit Painting & Wallcovering
8620 Sorenson Avenue, Unit 2, Santa Fe Springs, CA, 90670; Jim Laurent; 323-225-4063; summitpainting@sbcglobal.net

Superior Tank Co. Inc.
9500 Lucas Ranch Road, Rancho Cucamonga, CA, 91730; George Marquez; 909-912-0580; sales@superiortank.com

T Paul Sek EcoPainting
721 Seabright Ave., Santa Cruz, CA, 95062; Debbie Sek; 831-588-4080; seafriendly@msn.com

Techno Coatings, Inc.
1391 S. Allec St., Anaheim, CA, 92805; Bruce Birney; 714-635-1130; bbirney@technocoatings.com

Techno West, Inc.
1391 S. Allec St., Anaheim, CA, 92805; Chris Radovich; 714-635-4078; chris@technocoatings.com

Teocal Painting Inc.
18617 Valerio St., Reseda, CA, 91335; Gustavo Lopez; 818-997-6941; teocalpainting@aol.com

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Tank Linings
Thermal Spray
Waterjetting

Thermech Engineering
1773 W. Lincoln Ave., Bldg. I, Anaheim, CA, 92801-6713; Sonia Bounds; 714-533-3183; info@thermech.com

TRB Coating and Construction
1806 Turner Lane, Bakersfield, CA, 93308; Steve Fontes; 661-301-2029; sfontes@trb-oil.com

West Coast Industrial Coatings Inc.
3883 Wentworth Dr., Hemet, CA, 92545; Larry Wombles; 951-925-2288; lwombles@pasoroblestank.com

Wm. B. Saleh Co.
2361 Cepheus Ct., Bakersfield, CA, 93314; Chris Osburn; 661-393-8842; chris@salehcompany-bks.com

COLORADO

All West Surface Prep
6620 E. 56th Ave., Commerce City, CO, 80022; Chuck Wagner; 303-573-7737; info@allwestsurfaceprep.com

Applewood Painting Company
14000 W 78th Ave., Arvada, CO, 80005; Shane Anderson; 303-425-9071; apco3@qwestoffice.net

Better Painting & Coatings
1314 Harrison Rd., Colorado Springs, CO, 80905; Tim Hoeffel; 719-641-5043; info@betterpaintingandcoatings.com

Coblaco Services, Inc.
700 Billings St., Unit L, Aurora, CO, 80011; Brett Allison; 303-690-7148; marcie@coblaco.com

Quality Linings & Painting Inc.
8250 E. 40th Ave., Denver, CO, 80207; Kunal; 303-307-1313; sales@qlapi.com

Resource West, Inc
2245 Colex Dr., Grand Junction, CO, 81505; Robert L. Ballantyne; 970-261-1505; engineering@resourcewest.net

Seal It Up
9743 CR 26, Fort Lupton, CO, 80621; Chris Edwards; 970-535-0133; seal-it-up@hotmail.com

United Western Denver
6201 E. 42nd Ave., Denver, CO, 80216; Brad Meyn; 303-388-1224; orders@uniwestdenver.com

CONNECTICUT

Artistic Finishes
319 Peck St., New Haven, CT, 06513; Holly Whiting; 203-506-6997; hollywhiting@me.com

Blast All, Inc.
148 Mill Rock Rd. E., Old Saybrook, CT, 06475; Todd Davenport; 860-388-5464

F.M. Testani, Inc.
250 Black Rock Turnpike, Fairfield, CT, 06825; Mark L Testani; 203-335-2569; estimator@fmtestani.com

TC Facility Services Corp.
155 Garfield Ave., Stratford, CT, 06615; Patrick O'Rourke; 203-870-8170; porourke@tcfacility.com

DELAWARE

Burke Painting and Coatings, Inc.
25 Brookside Drive, Wilmington, DE, 19804; Robert Burke; 302-888-2440; bpcinbox@gmail.com

Cassidy Painting, Inc.
475 Old Airport Road, New Castle, DE, 19720; Michael Cassidy; 302-326-2412; mike@cassidypainting.com

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Thermal Spray
Waterjetting

Fasttrak Coatings Company
1500 Eastlawn Avenue, Wilmington, DE, 19802; Jason Skoglund; 302-761-5454; jason@fasttrakcoatingsco.com

FLORIDA

Advance Industrial Coatings LLC
4656-2 Collins Road, Jacksonville, FL, 32244; Randy Baird; 904-425-7307; info@aicoat.com

Americoat Corporation
2935 Barneys Pumps Place, Lakeland, FL, 33812; Ray Desai; 863-398-4344; americoatusa@yahoo.com

Ameripride Industrial Solutions LLC
Tarpon Springs, FL, 34689; Emmanuel; 727-741-7977; Ameriprideindustrial@gmail.com

Amherst Maintenance Inc
920 Harbor Lake Ct., Safety Harbor, FL, 34695; Nick Boubaris; 727-781-6500; amherstmaintenance@verizon.net

Archer Painting
114 E. Liberty St., Brooksville, FL, 34601; Wayne Vutech; archerpainting18@yahoo.com

B & B Painting Inc.
9417 Buck Haven Tr., Tallahassee, FL, 32312; Craig Farrell; 850-545-5215; farrellc64@gmail.com

BlueGreen Technologies, LLC
1408 Hamlin Ave. Unit A, Saint Cloud, FL, 34771; Craig Grason; 407-466-4427; craig@farrow4u.com

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Boyd Hart Company, Inc.
3244 39th St., Orlando, FL, 32839; Bruce Wohl; 407-843-1584; boydhartcompany@bellsouth.net

Bridge Masters Construction, LLC
1212 Crossbow Lane, Tarpon Springs, FL, 34689; Nikolas Vezyropoulos; 727-504-4480; bridgemasters@gmail.com

Champion Specialty Services, Corp.
130 SW 22nd Street, Ft. Lauderdale, FL, 33315; Duane Hough; 954-462-9079; duane@champpainting.com

Dependable Painting and Wallcovering Inc
14290 SW 97th Ave., Miami, FL, 33176; Steven Schneider; 305-233-3830; dependable@sprintmail.com

Elite Industrial Inc.
621 Hibiscus St., Ste 3, Tarpon Springs, FL, 34689; Tula Manglis; 727-940-6001; tula@eipainting.com

Exceletech Coating & Applications, LLC
221 N Hwy 27, Suite I, Clermont, FL, 34711; Larry Muzia; 352-394-2155; lm@excelcoatings.com

Fast Quality Painting
17912 NW 48 Pl., Miami Gardens, FL, 33055; 954-907-4827; 954-907-4827; llorente12@yahoo.com

Finishing Systems of Florida, Inc.
160 Dog Track Road, Longwood, FL, 32750; Brenda Soper; 407-834-6280; sales@finishingsystems.us

Gemstone, LLC
1010 Kennedy Dr., Ste. 406, Key West, FL, 33040; Cameron Jewell; 305-294-3233; cameronrjewell@gmail.com

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Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
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Gulf Coast Contracting, LLC
PO Box 2178, Tarpon Springs, FL, 34688; Manuel Gialousis; 727-938-6081; gulfcoastoffl@aol.com

H.I.S. Painting, Inc.
8680 Schirra Ct., Titusville, FL, 32780; Dave Heyne; 321-567-2468; daveheyne@hispaintinginc.com

Hill Painting Inc.
9942 Moorings Dr., Jacksonville, FL, 32257; Ron Hill; 904-993-6016; ronjaxpainter@gmail.com

Industrial Marine, Inc.
7259 Old Plank Rd., Jacksonville, FL, 32254; Charles Hawkins; 904-781-4707; info@industrialmarineinc.com

International Metalizing Corporation
PO Box 335, Deerfield Beach, FL, 33443; Carl Tudor; 609-670-2200; sales@metalize.net

KVK Contracting, Inc.
727 Wesley Ave., Tarpon Springs, FL, 34689; Vasilios Psefteli; 727-934-9984; office@kvkcontractinging.com

Lamphier & Company
131 Commerce Way, Sanford, FL, 32771; Robert Lamphier; 407-330-1628; lamphier1@aol.com

Overspray Removal Specialists
7415 Weeping Willow Drive, Sarasota, FL, 34241; George Colliard; 800-835-5858; george@overspray.com

Prime Technical Coatings
1135 53rd Ct. N., West Palm Beach, FL, 33407; Pete Luther; 561-844-2312

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Tank Linings
Thermal Spray
Waterjetting

Professional Tank Cleaning
3160 NE 3rd Ave., Oakland Park, FL, 33334; Alex Pellerito; 954-533-1135; estimating@protank.net

SDB Engineers & Constructors, Inc.
2090 E. Parrish Rd., Titusville, FL, 32796; Jody McDowell; 321-268-8500; jody@sdbconstructors.com

Star Painting
1663 SE Lafayette Street, Stuart, FL, 34997; Joseph Russo; 772-781-4030; starpainter2@gmail.com

TCS Empire, Inc
14629 SW 104th St., Ste. 518, Miami, FL, 33186; Angel M. Pareja; 305-234-8355; info@tcsempire.com

GEORGIA

Airco Sandblasting, Inc.
129 Pine Rd., Newnan, GA, 30263; Dee Johnsen; 770-638-2786; dj@aircosandblasting.com

Alaga Paint Co. Inc.
180 Gateway Crt., PO Box 7695, Columbus, GA, 31909; David Brown; 706-561-6166; david@alagapaint.com

All-Safe Industrial Services, Inc.
PO Box 566, Augusta, GA, 30903; Adam Rubendall; 866-774-0441; adam@allsafe1.com

Auto Claim Technology
3350 Riverwood Pkwy. Suite 1900, Atlanta, GA, 30339; Kyle Vaughn; 404-456-0805; kyle@autoclaimtech.com

Benise-Dowling & Associates, Inc.
5068 Snapfiger Woods Dr., Decatur, GA, 30035; Curt Dowling; 888-981-4237; curtdowling@benise-dowling.com

Benson Industrial Solutions, Inc.
1371 Aqueduct Way, Marietta, GA, 30062; Alec Benson; 770-579-0866; abenson@bensonindustrial.com

Black Dog Painting, LLC
100 Buck Trail, Social Circle, GA, 30025; Keith Trammel; 678-342-5457; ktrammel@blackdogpainting.com

CDS Coating TEC
6050 Carriage Park Way, Johns Creek, GA, 30097; Doug Sawyer; 502-592-3916; doug@cdscoatingtec.com

Coating Systems Inc.
4618 Old Louisville Rd., P.O. Box 7512, Savannah, GA, 31418; Mike McMahon; 912-964-7884; m.mcmahon@coatingsystems.net

Harrison Contracting Company
65 E. Industrial Ct., Villa Rica, GA, 30180; Chris Murphy; 770-949-5776; info@harrisoncontracting.com

Industrial Access
1465 Ventura Drive, Cumming, GA, 30040; Robert Washington; 770-255-1313; info@industrialaccess.com

Llamas Coatings, Inc.
2210 Riverview Rd. SE, Atlanta, GA, 30339; Benny Llamazales; 404-799-0384; contact@llamascoatings.com

MOPAC Plant & Building Services
836 Joseph E. Lowery Blvd. NW, Atlanta, GA, 30318; Martin Morris; 404-872-0434; mopac@mopac.biz

South GA Tower & Tank, Inc.
180 Banks Dr., Brunswick, GA, 31523; Garrett Gibbs; 912-265-4568; sgatt@comcast.net

Spectrum Painting, Inc.
3766 Peachtree Crest Dr., Suite B, Duluth, GA, 30097; Randy Snyder; 770-497-0101; rsnyder@spectrumpainting.com

ThermaCote
1369 Herrington Road, Lawrenceville, GA, 30044; Tommy Sharp; 888-389-0628; info@thermacote.com

Titus Restoration Services Inc.
122 N. College St., Thomasville, GA, 31792; Melinda; 678-494-6893; sales@titusrestoration.com

Williams Specialty Services, LLC
100 Crescent Centre Parkway, Suite 1240, Tucker, GA, 30084; Dan Daniels; 770-879-4034; rcarter@wisgrp.com

HAWAII

Coating Works Hawaii, Inc.
2955 Aukele St., Ste. 205, Lihue, HI, 96766; Mark Stiglmeier; 808-651-3804; mark@coatingworkshawaii.com

IDAHO

All Wall Contracting, Inc.
723 S. Lochsa St., Post Falls, ID, 83854; Jim Sweigart; 208-773-4650; jims@allwallinc.com

ILLINOIS

All-Tech Coatings
1227 Naperville Drive, Romeoville, IL, 60446; Robert Ruff; 630-226-2023; bruff@alltechcoatings.com

Chicago Corrosion Group
9021 Kostner Ave, Skokie, IL, 60076; Warren Brand; 847-423-2167; warren@chicagocorrosiongroup.com

Chicago Tank Lining Sales, Inc.
3603 Hillside Rd., Evanston, Evanston, IL, 60201; Tim Brand; 847-328-0500; sales@chicagotanklining.com

ComPro Painting & Decorating Services, Inc.
10 S. 160 Ramm Dr., Bldg. C, Naperville, IL, 60564; Jeffrey Tokar; 708-363-3667; jtcompro1@aol.com

Concare, Inc.
2081 N. 15th Ave., Melrose Park, IL, 60160; Ron Puszynski; 708-681-8800; ron.puszynski@concare.com

DBM Services Inc.
9850 W. 190th St. Ste. A, Mokena, IL, 60448; Mike Lynch; 708-995-1473

Demos Painting & Decorating Inc.
1730 W. Belmont Ave., Chicago, IL, 60657; Michael Demos; 773-248-5364; michaeldemos@msn.com

McCahill Painting Company
324 Rocbaar Drive, Romeoville, IL, 60446; Tim McCahill; 888-886-5544; info@mccahillpainting.com

Ostrom Painting & Sandblasting, Inc.
1110-8th Avenue, Rock Island, IL, 61201; Robert Walker; 309-788-1933; rwalker@ostrompainting.com

Paint Platoon USA
7307 Swan Way, Cary, IL, 60013; Scott Kuperman; 847-639-8800; contact@paintplatoon.com

Painters USA, Inc., K-Clean USA, Redimere Surface Solutions
570 Mitchell Rd, Glendale Heights, IL, 60139; Craig; 800-999-8715; estimate@paintersusainc.com

Pecover Decorating Services, Inc.
1033 Oliver Avenue, Aurora, IL, 60506; William Nielsen; 630-892-9100; info@pecover.com

Pete the Painter Inc.
633 Landwehr Rd., Northbrook, IL, 60062; Pete Wirtz; 847-564-4880; info@petethepainter.com

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
Power, Conventional
Power, Nuclear
Refinery/Petrochem
Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Precision Applied Coatings
15 Production Pkwy., Cahokia, IL, 62206; Gary Van Pelt/ Brett Vetter; 618-337-2581; glvp229@msn.com

Quality Assured Industrial Coatings
804 Hopp Hollow, Alton, IL, 62002; Beth Johnes; 618-466-0003; qaic@charter.net

Quincy Industrial Painting Co.
2000 N. 24th St., Quincy, IL, 62301; Curt Hilbing; 217-222-6710; curth@quincyindustrial.com

Royal Line Resins, Inc.
1105 Carolina Drive, West Chicago, IL, 60185; Al Guiliano; 847-678-3922; paison53@aol.com

Rust-Oleum
11 Hawthorn Pkwy., Vernon Hills, IL, 60061; Vince Pierri; 847-816-2273

INDIANA

ACS Ventures, LLC d/b/a American Clean & Seal
4469 Bragdon St., Indianapolis, IN, 46226; Jeff Wood; 317-536-0211; jwood@acs-indy.com

Cannon Sline Industrial Inc.
2552 Industrial Dr., Highland, IN, 46322; Bill Kuhlman; 708-906-0320; billkuhlman@k2industrial.com

Civil Coatings and Construction Inc
1651 West Lincolnway, Valparaiso, IN, 46385; Hyon Jin Kwak; 219-531-5300; Hkwak@civilcoatings.com

DECO Coatings
2075 South Belmont Ave. Suite B, Indianapolis, IN, 46221; Laura Blechl; 317-889-9290; laurab@decocoatings.com

Job Safety Associates, LLC
7542 New Hampshire Ave., Hammond, IN, 46323; Pete Engelbert; 312-296-9096; jobsafetyassociates@jobsafetyassociates.com

N.A. Logan, Inc.
3000 Burr St., Gary, IN, 46406; Dan Logan / Tony Logan; 219-989-0700; info@nalogan.com

Preferred, Inc.- Fort Wayne
6021 Highview Drive, Fort Wayne, IN, 46818; Philip Wilsford; 260-483-8383; pwilsford@preferredinc.com

Prism Painting Company, Inc.
P.O. Box 1944, Highland, IN, 46322; 219-322-4800; jimjr@prismpainting.com

Shield Industrial Painting Company
PO Box 1100, Greenfield, IN, 46140; Andrew Robertson; 317-847-1364; andrew@shieldpainting.com

Standard Coating Service Inc.
511 East Troy Avenue, Indianapolis, IN, 46203; A.K. Das; 317-331-8826; standcoat@sbcglobal.net

Summit Painting Co. Inc.
6251 Maplecrest Rd., Fort Wayne, IN, 46835; Ed; 260-432-1549

IOWA

Allen Blasting and Coating, Inc.
1668 Old US Hwy. 61, Wever, IA, 52658; Taylor Smith; 319-367-5500; tsmith@allenblastingandcoating.com

Allied Construction / Colors Inc.
214 35th St., Bettendorf, IA, 52722; Don Pruitt; 563-355-2651

D.A. Bunch Co.
4003 J Street SW, Ste. 4, Cedar Rapids, IA, 52404; Craig Dostal; 319-399-1735; craig@dabunch.com

DPI Quality Custom Finishes
1402 18th Street SW, Cedar Rapids, IA, 52404; Mark Debner; 319-395-0225; mark.debner@dpifinishes.com

Pospisil Painting, Inc.
728 58th Ave., Court SW, Cedar Rapids, IA, 52404; Cliff Mohling; 319-362-4356; contactus@pospisilpainting.com

Ziegler Industries
2600 Kindustry Park Road, Keokuk, IA, 52632; Christopher Andrews; 319-470-7191; chris.andrews@ziegler-industries.com

KANSAS

DEM Enterprises LLC
15729 E. 77th Street North, Benton, KS, 67017; Hamza Smajlovic; 316-351-1771; hamzasdem@yahoo.com

J. F. McGivern, Inc.
3333 SE 21st St., Topeka, KS, 66607; John A. McGivern; 785-354-1787; johnamcgivern@jfmcgivern.com

Neale Painting & Special Coatings
5449 Randolph Avenue, Topeka, KS, 66609; Steve Neale; 785-862-8629; nealepainting@msn.com

Utility Maintenance Contractors, LLC
4151 N. Seneca St., Wichita, KS, 67204; Kyle Long; 316-945-8833; kylel@umcllc.com

KENTUCKY

AST Acme, Inc.
728 South 13th Street, Louisville, KY, 40210; Wayne Cundiff; 502-364-6166; wayne.cundiff@astacme.com

Fitzgerald Painting, Inc.
1250 Otter Pond Rd., Princeton, KY, 42445; Melissa Fitzgerald; 270-365-2451; fitzgeraldpaint@bellsouth.net

Intech Contracting LLC
3131 Custer Dr. Suite 8, Lexington, KY, 40517; Brad Wilder; 859-272-0352; bradw@intechcontracting.com

J & J Properties Inc.
2631 River Rd., Hawesville, KY, 42348; Jeff Gillette; 270-929-0963; j.j.properties@hotmail.com

McKinney Painting, Inc.
104 Industrial Dr., Versailles, KY, 40383; Matthew Gamlin; 859-983-4515; matt@mckinneypainting.com

LOUISIANA

Brand Energy & Infrastructure Services
13527 Airline Hwy., Baton Rouge, LA, 70817; Daryl Breaux; 225-756-9660; d.breaux@brandsafway.com

The Cajun Company Inc.
PO Drawer 5-I, Lafayette, LA, 70505; Tammy Bowers; 504-265-8417; tbowers@cajunco.net

Decorative Concrete Coatings Llc
2124 Dogwood Dr., Monroe, LA, 71201; Chad Sanders; 318-398-1885; shirley@artonconcrete.com

Lanehart, Inc.
6530 Exchequer Dr., Baton Rouge, LA, 70809; Gary Joyner; 225-756-5050; garypjoy@lanehart.net

Professional Coating & Inspection Services
PO Box 430, Princeton, LA, 71067; Phillip Simmons; 318-540-8633; csimmons@pcandi.net

Sylvia T. Designs LLC
2250 Relacher Dr., Mandeville, LA, 70448; Sylvia Thompson; 985-778-1487; sylvia@sylviatdesigns.com

MAINE

Bath Iron Works - General Dynamics
700 Washington St. MS 4055, Bath, ME, 04530; Robert Cloutier; 207-442-2031; robert.cloutier@gdbiw.com

Central Maine Industrial Painting Inc.
39 Bugbee Rd., Dexter, ME, 04930; Brian .R Parlin; 207-431-8230; industrialpainting@yahoo.com

Copia Specialty Contractors, Inc.
261 Bomarc Road, Bangor, ME, 04401; Lee Stanley; 207-989-3082; copia@copiasc.com

Knowles Industrial Services
295 New Portland Rd., Gorham, ME, 04038; Billy Roy; 207-854-1900; broy@knowlesindustrial.com

MARYLAND

A I W, Inc.
5010 Inwood St., Hyattsville, MD, 20781; Raul Cancelado; 301-277-8444; r-cancelado@americanironworks.com

Blastech Enterprises Inc.
2200 Van Deman Street Suite 100, Baltimore, MD, 21224; John Korfiatis

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
Power, Conventional
Power, Nuclear
Refinery/Petrochem
Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

O.T. Neighoff & Sons, Inc.
117 Holsum Way, Glen Burnie, MD, 21060;
Alan J. Hoyas, Sr.; 410-766-3000; otn@otneighoff.com

Reglas Painting Co., Inc.
4128 North Point Rd., Baltimore, MD, 21222;
Chris Reglas; 410-477-8024; tgreglas@aol.com

Symmetric Painting, LLC
505 Blueball Rd Bldg. 120F PO Box 701, Elkton, MD, 21922;
Laki Paliouras; 410-398-7717; laki@symmetricllc.com

Titan Industrial Services
4054 North Point Road, Baltimore, MD, 21222;
Michael Forakis; 410-477-1857; michael@titanindust.com

MASSACHUSETTS

A&G Industrial Services, Inc.
40 Grissom Rd. BldG. #2 Unit G, Plymouth, MA, 02360;
Peter Krukiel; 508-591-8400; peter@aandgis.com

Advanced Prep Coat
41 Sutton Ln., Worcester, MA, 01603; John Currie;
508-752-3753; sales@prepcoat.com

AK Industrial Services, LLC
347 Third St., Everett, MA, 02149; Mark McLellan;
617-884-9252; mmclellan@akservices.com

The Aulson Company, LLC
49 Danton Drive, Suite 201, Methuen, MA, 01844;
Chris V. Pocoli; 978-609-7526; chrisp@aulsonllc.com

Black Bear Coatings & Concrete
644 River St., Fitchburg, MA, 01420; Justin Tousignant;
978-405-0017; info@blackbearconcrete.com

John W. Egan Co., Inc.
3 Border St., West Newton, MA, 02465; Nick Belisle;
857-488-5848; nbelisle@johnwegan.com

McDonnells Painting
PO Box 1475, Harwich, MA, 02645; Peter McDonnell;
508-430-1279; pmcdonnell@mcdonnellpainting.com

National Water Main, Inc.
25 Marshall Street, Canton, MA, 02021; Dennis Sullivan;
800-422-0815; dennis@nwmcc.com

Prime Coatings, Inc.
161 Elm St., Salisbury, MA, 01952; Richard Capolupo;
978-465-2556; primerc@comcast.net

Tower Blast & Paint, Inc.
PO Box 782, Middleton, MA, 01949; Richard D. Tower, Jr.;
978-774-5662; info@towerblastpaint.com

Warren Environmental, Inc.
PO Box 1206, Carver, MA, 02330; Jane Warren;
508-947-8539; jane@warrenenviro.com

MICHIGAN

Atsalis Brothers Painting
24595 Groesbeck Highway, Warren, MI, 48089;
Garry D. Manous; 586-790-0123

Bosk Corporation
2020 North 19th Street, P.O. Box 461, Escanaba, MI, 49829;
Gregory Bosk; 906-786-1883; boskcorp@boskinc.com

Concrete Services Inc.
1221 Bowers, Birmingham, MI, 48012; David Howell;
248-645-0110; dave@onecontractor4trades.com

Creative Surfaces
20500 Hall Road, Clinton Township, MI, 48038;
Sales; 586-226-2950; stella@cre8tivesurfaces.com

Eason Painting Inc.
20502 Hall Rd., Clinton Twp, MI, 48038; Kevin Eason;
586-465-5081; info@easonpainting.com

George Kountoupes Painting Co.
661 Southfield Rd., Lincoln Park, MI, 48416;
Cary Kountoupes; 313-388-9400; cary@gkpainting.com

Green Earth Coatings LLC.
1280 Holden Ave. Suite 109, Milford, MI, 48381; Douglas
Drew; 248-255-3594; ddrew@greenearthcoatings.net

H&H Painting
1738 N. Westnedge Ave., Kalamazoo, MI, 49007;
Mitch Morris; 269-342-2465; mmorris@hhpaintingco.com

Horizon Brothers Painting
1053 Kendra Ln., Howell, MI, 48843;
Dino Gjolaj; 810-632-3362

Industrial Painting Contractors, Inc.
25163 Darin Rd., Taylor, MI, 48180; Angelo Bakas;
734-946-7506; angelo@industrialpaintingcontrs.com

John's Cement
1151 Marjorie St., Milford, MI, 48381-1764;
John Schimmel; 248-202-6274; jsim6974@aol.com

Lake State Decorating
3240 W. St. Joseph Rd., Lansing, MI, 48917; Jack Stohr; 517-
364-9000; info@lakestatedecorating.com

Ojibway Inc.
3720 High St., Ecorse, MI, 48229; Paul Bresette;
313-381-5444; paul@ojibwayinc.com

Protective Coatings Epoxy Systems
971 Arlene Court, Fowlerville, MI, 48836; Mike Moran; 517-
242-4478; epoxyexpert@gmail.com

Richard Brothers Painting
7730 Jackson Rd., Suite No. 4, Ann Arbor, MI, 48103; Laura
Bosko; 734-424-1406; staff@richardbrotherspainting.com

Seaway Painting LLC
31801 Schoolcraft, Livonia, MI, 48150; Steve Vlahakis/Rob-
ert Repasky/Niko Vlahakis; 734-522-2440;
niko@seawaypainting.com

Signature Contracting Group, LLC
25630 Plymouth Road, Redford, MI, 48239;
Anne Hartland; 313-937-7000;
ahartland@signaturecontractinggrp.com

Viking Aegean Ltd.
18200 Riverview St, Riverview, MI, 48192; George
Koklanaris; 734-283-1277; vikingaegean@wowway.com

MINNESOTA

Abhe & Svoboda Inc
18100 Dairy Lane, Jordan, MN, 55352; James Svoboda;
952-447-6025; abhe@abheonline.com

Budget Sandblasting & Painting Inc.
6202 Concord Blvd., Inver Grove Heights, MN, 55076;
Steven Barry; 651-450-7992; bs-p@msn.com

Coating Specialties Inc.
Box 363, Montevideo, MN, 56265; Chad Toftness;
sales@coatingspec.com

FCP Services.com
3185 Terminal Dr, Eagan, MN, 55121; James Loukusa;
612-201-4353; jloukusa@finalcoatpainting.com

Fransen Decorating Inc.
214 First Street West, Milaca, MN, 56353;
John Fransen; 320-983-6113

Geo's Paint & Finish LLC
26392 State Hwy 18, Brainerd, MN, 56401;
George Erickson; 320-692-2027; george@geospaint.com

Midwest Mobile Waterjet
555 Barge Channel Road, St. Paul, MN, 55107; Brian
Gleeson; 651-755-7089; bgleeson@mmwaterjet.com

Miesen Color Center
18 E. Central St., Springfield, MN, 56087; Jim Miesen;
507-723-4424; jam@newulmtel.net

Nickelson Painting
1204 Broadway Ave, Rochester, MN, 55906;
507-280-0202 mary@nickelsonpainting.com

Smith Brothers Decorating Co.
17362 Hwy. 65 NE, Ham Lake, MN, 55304;
Mark Smith; 763-434-2470; mark@sbdecorating.com

Swanson & Youngdale, Inc.
6565 W. 23rd St., Minneapolis, MN, 55426; Patrick Skodje;
952-545-2541; pskodje@swansonyoungdale.com

TMI Coatings, Inc.
3291 Terminal Drive, St. Paul, MN, 55121; Tracy Gliori;
651-452-6100; tgliori@tmicoatings.com

United Painting & Sandblasting, Inc.
4908 Canosia Road, Saginaw, MN, 55779; Lee Sandstrom;
218-729-7100; unitedpaintings@aol.com

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
Power, Conventional
Power, Nuclear
Refinery/Petrochem
Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

MISSISSIPPI

Just Like New Overspray Removal, Inc.
178 Main St. Suite 302, Biloxi, MS, 39530; Gregg Goodhart; 228-617-3322; claims@jlnoverspray.com

McGuffie Painting & Waterproofing Company, Inc.
PO Box 5326, Jackson, MS, 39296; Dennis McGuffie; 601-981-4243; dmofms@aol.com

Yellow Creek Coating Services
9 County Road 370, Iuka, MS, 38852; Steven Mills; 662-423-5020; yellowcreekcoating@att.net

MISSOURI

All American Painting Company
9400 Irvington Avenue, St. Louis, MO, 63134; Rick Phillips; 314-522-9400; rphillips@allamericanptg.com

Bazan Painting Company
1273 North Price Rd., St. Louis, MO, 63132; Walt Bazan Jr.; 314-991-3500; waltbazanjr@bazanpainting.com

Coatings Unlimited Inc
4325 Bridgeton Industrial Dr., St. Louis, MO, 63044; Steven Philipp, Jr; 314-739-1081; stevejr@coatingsus.com

Color Craftsmen
9 Montauk Ct., St. Louis, MO, 63146-4945; John Bubenik; 314-313-1495; John@ColorCraftsmen.com

Goad Company
144 S. Kentucky Ave., Independence, MO, 64053; Curtis Goad; 800-733-4623; curtis@goadco.com

Hartman Walsh Industrial Services
7144 N. Market St., St. Louis, MO, 63133; Justin King; 314-863-1800; JKing@hartmanwalsh.com

Show Me Industrial Services, Inc.
2021 N. Warson Rd., St. Louis, MO, 63114; Arturo Rosas; 314-890-8030; showmeindustrial@sbcglobal.net

Superior Coatings Company
PO Box 317, Chillicothe, MO, 64601; Jim Deardorff; 660-646-6355; jimdeardorff@classicblast.com

Thomas Industrial Coatings, Inc.
2070 Highway Z, Pevely, MO, 63070; Dane McGraw; 636-475-3500; dmcgraw@thomasindcoatings.com

Utility Service & Maintenance, Inc.
9909 Clayton Rd. Ste. 107, St. Louis, MO, 63124; Doug Campbell; 314-997-6900; info@utilityservice.net

MONTANA

ADF Industrial Coating
1904 Great Bear Avenue, Great Falls, MT, 59404; Michel Drysdale; 406-315-3781; michel.drysdale@adfcoating.com

NEBRASKA

Lindner Painting, Inc.
701 S. Coddington Ave., Suite 100, Lincoln, NE, 68522; John Puelz; 402-421-8027; mail@lpicoatings.com

Walter's Painting, Inc.
1136 A St., #1, Lincoln, NE, 68502; Jeff Walters; 402-730-1781; jwalter2@neb.rr.com

Wittrock Sandblasting Inc.
12501 N. 148 St., Waverly, NE, 68462; Mike Wittrock; 402-786-5171; user198293@aol.com

NEVADA

Altech Corrosion Control Service
11152 Shadow Nook Court, Las Vegas, NV, 89144; Al Perez; 702-236-8740; ionfree@aol.com

Custom Painting and Decorating
254 E. Glendale Ave., Sparks, NV, 89431; Jason Warren; 775-355-0710

High Desert Surface Prep.
1460 Pittman Ave., Sparks, NV, 89431; Greg Johnson; 775-300-1900; dustie@hdspnv.com

MAastercraft Painting & Dec.
1617 Fairview Dr. Unit 26, Carson City, NV, 89701; Jay Dargert; 775-883-3445; office@mastercraft-painting.com

NEW HAMPSHIRE

Advanced Marine Preservation
612 W. Main St., Unit 2, Tilton, NH, 03235; Eric Pesinski; 603-491-0584; epescinski@gotoamp.com

John K's Professional Painters
55 Nelson St., 2nd Floor, Manchester, NH, 03103; John S. Kyriazis; 603-624-8674; john@johnkspainting.com

Modern Protective Coatings, Inc.
PO Box 119, Hudson, NH, 03051; Scott Roystan; 603-594-3722; sroystan@comcast.net

Tri-State Painting, LLC
612 W. Main St., Unit 2, Tilton, NH, 03276; Krystal Slate; 603-286-7657; info@gototsi.com

NEW JERSEY

Allan Briteway Electrical Utilty Contractors, Inc.
130 Algonquin Parkway, Whippany, NJ, 07981; Marie Elton; 610-247-4764; melton@allanbritewayutility.com

Allied Painting, INC.
4 Larwin Road, Cherry Hill, NJ, 08034; Michele Masso; 856-429-3400; mmasso@alliedpaintinginc.com

Alpine Painting & Sandblasting Contractors
17 Florida Ave., Paterson, NJ, 07503; Sam Scaturro; 973-279-3200; Info@alpinepainting.com

Anka Painting Co., Inc.
P.O. Box 292, Palisades Park, NJ, 07650; John P. Psarianos; 201-944-3000; johnp@ankapaintingco.com

Barr-None Coating Applicators, Inc.
PO BOX 2238, Colts Neck, NJ, 07722; John Barr; 732-886-9083

Corrosion Control Corporation
177 US Route 130, Pedricktown, NJ, 08067; Matt Menold; 856-466-4341; matt@tankcare.com

DJ's Painting
168 Richards Road, Bridgeton, NJ, 08302; Dan Haer; 856-455-5257; dan@djspainting.com

Empire Rentals, Inc.
2740 Route 23 North, Stockholm, NJ, 07460; Steve Petric; 973-725-2084; petric@optonline.net

First Class Painting, Inc.
832 Birch Terrace, Williamstown, NJ, 08094; Leland Hansen; 609-352-0091; lee@firstclasspa.net

Groome Industrial Service Group
22 Audrey Place, Fairfield, NJ, 07004; Paul Marzocca; 201-445-6100; pmarzocca@groomeindustrial.com

J.G. Nasile Painting Company, Inc.
64 Oakland St., Trenton, NJ, 08618; Jerry Nasile; 609-394-7770; jerry@jgnasilepainting.com

Mercer Coating & Lining Co. Inc.
1410 E. Linden Ave., Linden, NJ, 07036; Michael Powers; 908-925-5000; mercercoating@aol.com

PIM Corporation - A SBE Company
201 Circle Dr. North, Suite 105, Piscataway, NJ, 08854; Belman A. Salazar; 732-469-6224; pimcorp@pimcorp.com

Pro-Spec Painting Corporation
1819 Cedar Ave., Vineland, NJ, 08360; Dave Austin; 856-690-9500; service@pro-spec.com

West Virginia Paint LLC
1051 Paulison Ave., Clifton, NJ, 07011; David Cushman; 973-772-6565; info@wvapaint.com

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
Power, Conventional
Power, Nuclear
Refinery/Petrochem
Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Zack Painting Co., Inc.

900 King Georges Road, Fords, NJ, 08863; David Zack; 732-738-7900; Dzack@zackpainting.com

SSPC CERTIFICATIONS: QP 1 | QP 2

NEW MEXICO

Don Juan's Construction
2855 Rufina St., Santa Fe, NM, 87507; Beron Briscoe; 505-471-2121

JTC, Inc.
PO Box 25885, Albuquerque, NM, 87125; Dean Ford; 505-858-0300; contact@jtccoatings.com

Riley Industrial Services, Inc.

2615 San Juan Blvd, Farmington, NM, 87401; Ralph Doolin; 505-327-4947; ralphd@rileyindustrial.com

SSPC CERTIFICATIONS: QP 1 | QP 2

NEW YORK

Ahern Painting Contractors Inc.
69-24 49th Ave, Woodside, NY, 11377; Kieran Ahern.; 718-639-5880; kieran@aherncontractors.com

Amstar of Western New York, Inc.
825 Rein Road, Cheektowaga, NY, 14225; Bruce Cozad; 716-253-6601; bcozad@amstarwny.com

Atlas Painting & Sheeting Corp.
465 Creekside Drive, Amherst, NY, 14228; James Frangos; 716-564-0490; atlaspaint@hotmail.com

Blast Off Inc.
400 Vulcan St., Buffalo, NY, 14207; Jesse Telaak; 716-568-7502; info@blastoffny.com

BrandSafway, LLC
Scotia Glenville Ind. Park Building 406, Scotia, NY, 12302; Jerry Dolly; 518-381-6000; QuikDeck@Safway.com

Eastern Tank Services
400 Vulcan Street Building #9, Buffalo, NY, 14207; Ken Holdsworth; 716-832-8942; eastern@easterntank.com

Erie Painting and Maintenance Inc.
999 Rein Rd, Cheektowaga, NY, 14225; Lee Bahas; 716-634-6746; lbahas@eriepaint.com

Frank J. Ryan & Sons Inc.
1277 5th Avenue, Troy, NY, 12180; Bob Ryan; 518-274-6871; bob@ryancommercialpainting.com

J M and Son Painting Co. Inc.
37 Mellow Ln., Westbury, NY, 11590; Morris; 516-333-3739; jmsonpainting@optonline.net

Jimco Painting
14 Cliffview Ln., Voorheesville, NY, 12186; Tim Dickson; 518-466-8530; jimco57@aol.com

The L.C. Whitford Co., Inc.
164 N. Main Street, Wellsville, NY, 14895; Justin Fillhart; 610-755-8153; jfillhart@lcwhitford.com

Lanza Paint Works inc
332 Parker Avenue, Buffalo, NY, 14216; Frank Lanza; 716-875-7890; lanzapaintworks@gmail.com

Limnes Corp.
1095 Tulip Avenue, Franklin Square, NY, 11010; Popi Shinas; 718-357-4391; limnescorp@aol.com

Niagara Coatings Services, Inc.
8025 Quarry Rd., Niagara Falls, NY, 14304; Allen R. Richards; 716-297-5834; arichards@niagaracoatings.com

NUCO Painting Corporation
8 Oval Dr., Islandia, NY, 11749; Jason Jacinto; 631-467-6602; jason@nucopainting.com

P.C.I. International
26 Cooper Ave., Tonawanda, NY, 14150; Mike Varvakis; 716-834-0260; mikepci@hotmail.com

The Pike Company, Inc.
1 Circle Street, Rochester, NY, 14607; Daniel Sinnott; 585-271-5256; knodt@pikeco.com

Sage Bros Painting Co., Inc.
1115 Fifth Ave., Troy, NY, 12180; Bill Sage; 518-273-7511; wpsagebros@verizon.net

Secondary Services Inc.
757 East Ferry St., Buffalo, NY, 14211; Dan O'Connor; 716-896-4000; sales@secondaryservices.com

Sri Construction LLC
47 Rte. 25 A, Suite 2, East Setauket, NY, 11733; Guru Switzoor; 516-621-1030; gswitzoor@sriconstruction.biz

Stuart Dean Company
450 Seventh Avenue, New York, NY, 10123; Rex Dean; 201-650-5490; rdean@stuartdean.com

TEC Protective Coatings, Inc
25 Brookwood Rd., Waterford, NY, 12188; Julian Brennan; 518-233-1347; jbrennan@teccoatings.com

Tower Maintenance Corp
1 Plaza Road Ste. #102, Greenvale, NY, 11548; Elizabeth Vlahopoulos; 516-305-5100; info@towermaint.com

WCM Painting Company
53 Colonial Dr., Horseheads, NY, 14845; William Morley; 607-734-6743; wcmpaintingco@aol.com

Wiltsie Construction Company, Inc.
735 E. Seneca St., Oswego, NY, 13126; Peter Wiltsie; 315-342-1880; pwiltsie@wiltsienet.com

NORTH CAROLINA

Astron General Contracting Co., Inc.
PO Box 1100, Dallas, NC, 28034; Pete Hadiaris; 910-577-1515; admin@astrongeneralcontracting.biz

Carolina Management Team
49 McDowell Street, Asheville, NC, 28801; Wendy Banks; 336-431-7708; sales@cmtcoatings.com

Great Walls Supply Inc.
4230 Barringer Dr., Charlotte, NC, 28217; Mike Coles; 704-523-3402; mikeplaster@att.net

Industrial Coatings & Fireproofing
PO Box 4160, Dallas, NC, 28034; Brian Baker; 562-426-7105; bbaker@icf-usa.com

Southern Corrosion Inc
738 Thelma Road, Roanoke Rapids, NC, 27870; Jim Dotson; 800-828-0876; sci@tankcare.net

Southern Paint and Waterproofing
3306 Liberty Rd., Greensboro, NC, 27406; Richard Bramlett; 336-378-1103; richard@spwcinc.com

Structural Coatings Inc.
8029 Highway 70 W, Clayton, NC, 27520; Rick Brown; 919-553-3034; rick@thehalesgoup.net

Superior Industrial Maintenance Company, Inc.
4801 Stough Road, Concord, NC, 28027; Jim Gregg; 704-453-9697; jgregg@gosuperior.net

NORTH DAKOTA

H & H Coating's Inc.
404 Roberts Street, Devils Lake, ND, 58301; Tammy Rutten; 701-662-8190; hhcoat@gondtc.com

OHIO

Advanced Industrial Services
3731 Groves Rd., Lima, OH, 45805; Mike Gantz; 567-204-6111; mgantz@irexcorp.com

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
Power, Conventional
Power, Nuclear
Refinery/Petrochem
Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Aerco Sandblasting Company
429 N. Jackson St., Lima, OH, 45801; Bryan Zofkie; 419-224-2464

APBN Inc.
PO Box 637, Campbell, OH, 44405; Vasilis Katsourakis; 724-964-8252; info@apbninc.com

Athos Contracting, Inc.
7207 Rustic Oval, Independence, OH, 44131; Irene Scordos; 216-573-1433; athoscontracting@cox.net

Central Painting and Sandblasting
8543 Riverland Ave. SW, Navarre, OH, 44662; Michael Ritterbeck; 330-756-2043; cps@sssnet.com

Corcon, Inc.
3763 McCartney Rd.,
Lowellville, OH, 44436; 330-536-2133;
LGLyras@aol.com or dhatherill@corconinc.com

SSPC CERTIFICATIONS: QP 1 | QP 2

Corrosion Prevention & Environmental Services Company
PO Box 756 27201 Royalton Road Unit J, Columbia Station, OH, 44028; Dave Deptowicz; 440-748-4042; deptow@gmail.com

Epoxy Systems Blasting & Coating, Inc.
5640 Morgan Rd, Cleves, OH, 45002;
Ray Litmer; 513-924-1800;
rlitmer@fuse.net

Euro Paint, LLC
819 McCartney Rd. Unit 3, Youngstown, OH, 44505; Evelyn Klimis; 330-536-6476; europnt@yahoo.com

George Steel Fabricating, Inc.
1207 South US Route 42, Lebanon, OH, 45036; Kevin Nickell; 513-932-2887; kevin@georgesteel.com

Gheens Painting Inc.
50550 Rainbow Ridge Road, Long Bottom, OH, 45743; Danny Gheen; 740-949-0405; gheenspainting@gmail.com

Lima Sandblasting & Painting Company
4310 East Road, Lima, OH, 45807; Bill Smith; 419-331-2939; Limapaint@embarqmail.com

M & J Painting Company
PO Box 604 2 Short St., Campbell, OH, 44405; Michael Kerpelis; 330-755-4988; mjpainting@sbcglobal.net

Martin Painting & Coating Co.
2040 Longwood Ave, Grove City, OH, 43123; John Martin

Mullin Bros. Painting and Construction Services
1300 E. 260th, Euclid, OH, 44132; 216-731-9070; mullinbros@sbcglobal.net

Newbury Sandblasting & Painting, Inc.
9992 Kinsman Rd., Newbury, OH, 44065; Nelson Peterson; 440-564-7204; pete@newburysandblasting.com

Permafloor, Inc.
4127 Westward Avenue, Columbus, OH, 43228; Larry Cameron; 614-441-5564; larry@permafloorinc.com

Precision Industrial Coatings, Inc.
27201 Royalton Road Unit J, Columbia Station, OH, 44028; Dave Deptowicz; 216-650-0286; deptow@gmail.com

Rural Water Storage, LLC
7878 Sugar Valley Rd., Camden, OH, 45311; Ben Johnson; 937-452-3727; tankmanone@aol.com

Spartan Contracting LLC
5959 W. Liberty St., Hubbard, OH, 44425; Nick Hazimihalis; 330-534-7790; choletta@aol.com

Spectrum Commercial Coatings
9317 Johnstown Alexandria Rd, Johnstown, OH, 43031; estimating@spectrumcoatings.biz; 614-754-8143

Summit Industrial Flooring
3065 Dryden Rd., Moraine, OH, 45439; Tim King; 937-534-1534; tim.king@sumind.com

Tank Services
4412 Pleasant Valley Road SE, Dennison, OH, 44621; Jim Milano; 330-479-9267; jmilano@tankservices.com

Thomarios
1 Canal Square Plaza, Akron, OH, 44308; Adam Thomarios; 330-670-9900; info@thomarios.com

UCL, Inc.
2025 Stapleton Ct., Cincinnati, OH, 45240; Pete Kontopos; 513-674-1666; unitedpainting@fuse.net

OKLAHOMA

His Paint Manufacturing Company
1801 W. Reno Ave., Oklahoma City, OK, 73106; Kirk Cox; 405-232-2077; kirkc@hispaint.com

Industrial Maintenance Contractors, Inc.
1908 E. Eseco Road, Cushing, OK, 74023; David Lesco; 281-991-1215; Dlesco@imconinc.net

Kinard Painting & Sandblasting, Inc.
802 N. Dean A. McGee Ave., Wynnewood, OK, 73098; Chris Kinard; 405-207-3785; kinardpainting@hotmail.com

Park Derochie (Coatings & Linings) LLC
2018 South East Avenue, Cushing, OK, 74023; Tom Spencer; 918-225-0573; info@parkderochieusa.com

Tower Inspection, Inc.
PO Box 709, Muskogee, OK, 74402; Gary Lehman; 918-683-8915; sales@towerinspection.com

OREGON

F.D. Thomas, Inc. - Industrial Painting & Specialty Coating
217 Bateman Drive, Central Point, OR, 97502; Mike Kostenko; 541-664-3010; mikek@fdthomas.com

Heritage Painting & Fine Finishing 1LLC
PO Box 2309, Roseburg, OR, 97470; Lisa Welding; 541-673-6869; heritagepainting1@yahoo.com

The Rodriguez Corporation
7805 SW 40th Ave., Suite 19031, Portland, OR, 97219; Fernando; 503-245-0679; therodcorp@msn.com

Pro-Tect Plastic & Supply, Inc.
PO Box 1377, Jacksonville, OR, 97530;
800-889-WRAP; sales@pro-tect.net;
www.shrinkwrapcontainments.com

S&K Painting, Inc.
15648 SE 114th Ave. Suite 102 P. O. Box 390, Clackamas, OR, 97015; Steve Smith; 503-557-5544; steve@skpainting.com

Saxon Enterprises
741 S. Grape Street, Medford, OR, 97501; Donald Saxon; 503-857-5945; donald@saxonent.com

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
Power, Conventional
Power, Nuclear
Refinery/Petrochem
Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Vigor Industrial LLC
5555 N Channel Avenue, Portland, OR, 97217; Joe Morgan; 503-247-1416

PENNSYLVANIA

American Precision Powder Coating
1296 Airport Road, Aliqippa, PA, 15001; James Verostek; 724-788-1691; info@appowdercoating.com

Arbonite, a Div. of Valjon Industries, Inc.
3826 Old Easton Rd., Doylestown, PA, 18902; Roger Hughes; 215-348-2950; roger@arbonite.com

Arena Maintenance Solutions, LLC
7155 Camp Hill Rd., Ft. Washington, PA 19034; Drew Turner; 215-367-5276; aturner@arenamaintenancesolutions.com

Avalotis Corporation
PO Box 6, 400 Jones St., Verona, PA, 15147; Chris Aivaliotis; 412-423-2170; chris@avalotis.com

AVALOTIS

SSPC CERTIFICATIONS: QP 1 | QP 2 | QS 1

Electro Chemical Engineering & Manufacturing Co.
750 Broad St., Emmaus, PA, 18049; Dale K. Heffner; 610-965-9061; inquiry@electrochemical.net

F-A-D Corporation
2000 Industrial Highway Suite 5, Crum Lynne, PA, 19022; Robert Fad; 610-872-3844; fadcorp@fadcorporation.com

Fenton T. Lemmon Painting and Line Striping LLC
552 Wilson Ct, York, PA, 17403; Fenton Lemmon; 717-649-6830; ftlpainting@gmail.com

Fisher Tank Company
3131 West 4th Street, Chester, PA, 19013; Fred Ruinen; 803-359-4173; fruinen@FisherTank.com

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
Power, Conventional
Power, Nuclear
Refinery/Petrochem
Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Floor-Apps
3163 Paulowna Ln., York, PA, 17404; Dennis Carrington; 717-586-9905; Floorapps@gmail.com

G.C. Zarnas & Co., Inc.
850 Jennings Street, Bethlehem, PA, 18017; Harry Ehrie; 610-866-0923; hehrie@gczarnas.com

ZARNAS

SSPC CERTIFICATIONS: QS 1 | QP 1 | QP 2 | QP 8

Global Rope Access
Box 147 – 1784 E. Third St., Williamsport, PA, 17701; Andrew Fodor; 866-786-2543; andrew.fodor@globalropeaccess.com

Hadek Protective Systems, Inc.
651 Holiday Drive Foster Plaza 5, Pittsburgh, PA, 15220; Rudy van Noort; 412-204-0028; r.van.noort@hadek.com

Hercules Painting Company, Inc.
1102 Sampson St., New Castle, PA, 16101; Brian Balzli; 724-654-9741; brianb@herculespainting.com

I.K. Stoltzfus Service Corp.
1896 Auction Rd., Manheim, PA, 17545; John Stoltzfus; 717-653-6789; matt.stoltzfus@ikstoltzfus.com

John B. Conomos, Inc.
510 Coulter Street, PO Box 279, Bridgeville, PA, 15017; Chris Kucherawy; 412-221-1800; ckucherawy@conomos.com

Jupiter Painting Contracting Co., Inc.
1500 River Rd., Croydon, PA, 19021; Paul Tsourous; 800-523-6428; agt@jupiterpcc.com

KIG Craft LLC
501 Cambridge Ave., Bensalem, PA, 19020; Kevin; 215-852-4705; kigcraftllc@gmail.com

Master-Lee Decon Services
5631 Route 981, Latrobe, PA, 15650; Timothy Wedow; 724-805-4949; wedow-tm@masterlee.com

Minoan, Inc.
230 Palomino Drive, York, PA, 17402; George Tzanakakis; 410-258-0229; Minoaninc@gmail.com

Odyssey Contracting Corp.
PO Box 97, 2435 W. Pike St., Houston, PA, 15342; Stavros Semanderes; 724-745-1022; odyssey@odysseygroup.net

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
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Power, Nuclear
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Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Postupak Painting Co., Inc.
81 New Frederick St., Wilkes-Barre, PA, 18702; Carl Postupak Sr.; 570-824-0290; estimating@postupak.com

Ralph E. Jones, Inc.
2240 Forster Street, Harrisburg, PA, 17103; Beth A. Peiffer; 717-233-6444; bpeiffer@ralphejonesinc.com

Rampart Hydro Services
530 Moon Clinton Road, Coraopolis, PA, 15108; Tom McCann; 412-262-4511; sales@rampart-hydro.com

Salt Painting, Inc.
17918 State Highway 198, Saegertown, PA, 16433; Dick Eglinton; 814-763-5002; saltpainting@windstream.net

Sauereisen, Inc.
160 Gamma Dr., Pittsburgh, PA, 15238; John E. Davis; 412-963-0303; jedavis@sauereisen.com

Service Painting Inc.
200 Price St., Trainer, PA, 19061; Nick Garavelas; 610-497-4700; servicepainting@comcast.net

Steel City Painting Services, Inc.
1415 Woods Run Ave., Pittsburgh, PA, 15212; John D. Elsesser; 412-766-7950; elsesser@steelcity.com

Stronghold Floors
2231 South Market St., Mechanicsburg, PA, 17055; Steve Galeone; 717-458-5620; midatlantic@strongholdfloors.com

Surface Technology, Inc.
PO Box 7031, Lancaster, PA, 17604; Michael E. Greenblatt; 800-776-5328; sales@surfacetechnologyinc.com

Technical Services Mid Atlantic, Inc.
2324 W. 2nd St., Chester, PA, 19013; Mike Alloway; 610-496-1180; michaelalloway@hotmail.com

PUERTO RICO

Demaco Corporation
PO Box 8283, Ponce, PR, 00732; Luigi Dessy; 787-835-2222; ldessy@demacopr.com

RHODE ISLAND

American Painting & Sandblasting Inc.
57 Reservoir Rd., Coventry, RI, 02816; Bob Crowe; 401-826-1649; apsi45@verizon.net

Inter-City Contracting, Inc. (SSPC- QP3)
127 Limerock Rd., Smithfield, RI, 02917; Kevin Bouthillette; 401-231-5025; blasting@intercitycontracting.com

Rhody Painting Inc.
83 Old River Road, Lincoln, RI, 02865-1309; Joseph F. McVeigh; 013-330-9904

Bridge & Highway
Chemical Processing
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Water Tanks/Works
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Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

SOUTH CAROLINA

Classic Finish Inc.
10 Finders Lane, Beaufort, SC, 29907; Shelby Manuel; 843-524-6930; classicfinishinc@hotmail.com

GCI Services - Paint. Renovate. Repair. Build
655 H. Fairview Rd., #181, Simpsonville, SC, 29680; Eric G.; 864-346-3470; info@gciservicesinc.com

Nelson Preferred Painting Co., Inc.
238 Swartz Rd., Lexington, SC, 29072; David P. Nelson; 803-520-8240; courtney@nelsonpreferred.com

SOUTH DAKOTA

Carr Coatings, LLC
PO Box 159, Belle Fourche, SD, 57717; Jessica S. Carr; 605-723-2677; jessica@carrcoatings.com

Maguire Iron Inc.
1610 N. Minnesota Ave, Sioux Falls, SD, 57104; John Snodgrass; 605-334-9749; snodgrassj@maguireiron.com

TENNESSEE

Architectural Concrete Finishes
PO Box 2246, Chattanooga, TN, 37409; Aubrey Black II; 423-785-6462; archconcretefinishes@gmail.com

Brown Painting Co. Inc
344 Bennett Rd., Oliver Springs, TN, 37840; Danny Brown; 865-207-8265; tank207@aol.com

Charlie Irwin Painting, LLC
104 Alpha Drive, Franklin, TN, 37064; Keith Mabry; 615-790-8822; keith@cipaint.com

Commercial Painting, Inc.
350 Herron Drive, Nashville, TN, 37210; Ken W. Darby; 615-242-8212; kwdarby@cpinash.com

IPL Industrial Services Inc.
8359 Hwy. 51 S., Brighton, TN, 38011; Dale Smith; 901-837-7020; officeipl@bigriver.net

M&D Coatings, Inc.
PO Box 280033, Memphis, TN, 38168; Michael Mays; 901-353-3066; sales@mdcoatings.com

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
Power, Conventional
Power, Nuclear
Refinery/Petrochem
Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Mid-South Specialties Inc.
3379 Cazassa Rd, Memphis, TN, 38116-3609; Angela Wright; 901-345-5170; angela@msspec.com

MSSpec.
Mid-South Specialties, Inc.
Painting, Resoration, Waterproofing
Shotblasting, Resinous Flooring/Containment

Professional Painting, LLC
117 Bainbridge Drive, Clarksville, TN, 37043; Donnie Alley; 931-320-4587; profpainting@att.net

TEXAS

American Electrostatic Ptg., Inc.
155 Prosperity Pkwy., Emory, TX, 75440; S. Doug Harms; 214-951-0909; doug@amelectro.biz

Anchor Industrial Services
2707 Wadsworth, Houston, TX, 77015; Wayne Pruitt; 713-899-6903; wpruitt@anchorteams.com

Apache Industrial Services
250 Assay St. Ste. 500, Houston, TX, 77044; Craig Coverdale; 281-609-8823; ccoverdale@apacheip.com

AZZ Metal Coatings
3100 West 7th Street Suite 500, Fort Worth, TX, 76107; Bernardo Duran; 682-215-3987; bernardoduran@azzgalv.com

Blastco (a TF Warren Company)
16201 Wood Dr., Channelview, TX 77530; Steve Wissing; 281-590-3200; steve.wissing@tfwarren.com

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SSPC CERTIFICATIONS: QP 1 | QP 2 | QS 1

BoxCoat
PO Box 60447, Midland, TX, 79711; Tad Box; 432-254-2599; tadbox@gmail.com

BRACE Industrial Group
14950 Heathrow Forest Pkwy., Houston, TX, 77032; Sam Green; 816-520-7930; sam.green@brace.com

- Shop & Field Application of High-Performance Coatings and Fireproofing
- Industrial Coatings & Linings, Fireproofing, Scaffolding, Insulation, Heat Tracing, Industrial Siding and Decking, Lead/Asbestos Abatement, Concrete Repair and Refractory
- Industry Leading Safety, Quality, Applicator Training & Certification Programs

BRACE

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BrandSafway
1830 Jasmine Drive, Pasadena, TX, 77503; Tom Frederic; 281-404-5151; tfrederic@brandsafway.com

The Brock Group
10343 Sam Houston Park Drive, Suite 200, Houston, TX, 77064; Rich Haggard; 281-478-3400; rich.haggard@brockgroup.com

Brock

SSPC CERTIFICATIONS: QP 1 | QP 2

Brock Services, LLC
3649 Leopard Street, Suite 100, Corpus Christi, TX, 78408; Dan Braud; 361-289-2951; dan.braud@brockgroup.com

Bridge & Highway
Chemical Processing
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Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Brock Services, LLC
4440 Highway 225, Suite 200, Deer Park, TX, 77536; Daryl Johnson; 281-478-5600; ddonaldson@brockgroup.com

Chacho's Painting
P.O Box 6612, Corpus Christi, TX, 78466; Jose M. Alvarado; 361-232-6743

Concrete Cleaning, Inc.
PO Box 73452, Houston, TX, 77273; Sales; 281-350-3663; sales@concretecleaninginc.com

CPS Houston, Inc.
301 S. Sheldon Rd, Channelview, TX, 77530; Kyle Yarbrough & Andy Badeaux; 281-457-2454; kyle@cpshouston.net

Curran International
4610 Vicksburg Lane, Dickinson, TX, 77539; Ed Deely; 281-339-9993; edeely@curranintl.com

Custom Blast Services, Inc.
4835 Bourque Road, Nederland, TX, 77627; Blaine Boudreaux; 409-729-6353; bboudreaux@brockgroup.com

Cypress Bayou Industrial
7000 Highway 87 N., Orange, TX, 77632; Tyler Derouen; 409-670-6102; bids@cypressbayouind.com

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Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Dobbs Coating Systems, Inc.
1888 Mineral Wells Hwy., Weatherford, TX, 76088; Don Fillenworth; 817-341-1777; dfillenworth@dobbscoatingsystems.com

F&D Paint Services, Inc.
2612 Island View Dr., Frisco, TX, 75036; Frank Farris; 214-212-1605

G&C Contracting Co. Inc.
PO Box 1241, Levelland, TX, 79336; Ken or Rob Williams; 806-894-4547; kdwtamu81@aol.com

GCE INC.
102 Treeview Ct., Fort Worth, TX, 76126; Dino Kalfuntzos; 817-443-3990; gceinc@yahoo.com

Gorrell Coatings
2307 Lathan Ln., Taylor, TX, 76574; Farrel Gorrell; 512-563-3597; moonsmadness@aol.com

Industrial Flooring Services, Inc.
2736 Market St., Garland, TX, 75041; Brett Parrish; 214-349-7891; Brett@ifsifloors.com

Bridge & Highway
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Water Tanks/Works
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Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

J & B Painting & Construction Services
908 Sweetgum Creek, Plano, TX, 75023; John Bowen; 214-229-3777; johnbow5@netscape.net

Keith, Inc.
5914 E. Orem, Houston, TX, 77048; Brian Keith; 713-991-5670; bkeith@keithinc.com

Lankford Company, Inc.
PO Box 4729, Corpus Christi, TX 78469; Jim Lankford; 361-289-5600; jim@lankfordcompany.com

L.D. Bundren Painting Inc.
26110 Longenbaugh, Katy, TX, 77493; Craig Bundren; 713-468-4331

LoneStar Corrosion Services, Inc.
9216 Windmill Park Ln., Houston, TX, 77064; Glen Cronin; 281-955-1313; gcronin@lonestarcorrosion.com

Mistras Group
10980 Metronome Dr., Houston, TX, 77043; Robert Silva; 713-465-4113; robert.silva@mistrasgroup.com

Pardalis Industrial Enterprises, Inc.
3320 Longhorn Drive, Houston, TX, 77084; Tony Saroukos/Aki Platis/Mario Fuentes; 281-579-6535; info@pardalisindustrial.com

Park Derochie (Industrial Serives) Inc
14090 Southwest Fwy. Suite 300, Sugar Land, TX, 77479; Doug Sinitiere; 281-690-1665; info@parkderochieusa.com

Precision Pro Inc.
14913 Garrett Rd., Houston, TX, 77044; Simon Trevino Jr.; 281-962-2128; Simon@PrecisionProInc.com

Pro-Tect Services, Inc.
PO Box 719 12235 Highway 105 East, Conroe, TX, 77306; Steve Scott; 713-589-4638; sales@pro-tectservices.com

Pyrolac LLC
17207 Kuykendahl Rd. Ste. 106, Spring, TX, 77379; Enrique Marin; 832-559-3913

Quality Product Finishing, Inc.
9610 Fairbanks N. Houston, Houston, TX, 77064; Skyler Zochert; 281-469-6970; szochert@qpfinishing.com

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Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

Riley Industrial Services, Inc.
1251 OIDC Dr., Odessa, TX, 79760;
Ralph Doolin; 505-327-4947;
ralphd@rileyindustrial.com

SSPC CERTIFICATIONS: QP 1 | QP 2

San-Coat, Inc.
13248 Donop Rd., San Antonio, TX, 78223; Phil Moy; 210-633-2880; philm@sancoat.com

Sand-Tech Coatings, Inc.
4608 Navajo Trail, Balch Springs, TX, 75180; Gerald Sanders; 972-287-5308; gsand10594@sbcglobal.net

Sunset Painting & Waterproofing, LLC
487 Maplewood Ln., San Antonio, TX, 78216;
Ezra Diaz; 210-822-2950; sunset.painting@yahoo.com

Travis Industries, LLC
8032 Rendon Bloodworth Rd., Mansfield, TX, 76063;
Craig Allison; 817-426-1114; callison@travind.com

Travis Industries, LLC
PO Box 460067, San Antonio, TX, 78246; Carlton Catalani; 210-648-1990; carltonc@travisind.com

Woyt Industries
1715 Humble Place Drive, Suite B, Humble, TX, 77338; Amber Widner; 281-705-8640; amber@woytindustries.com

UTAH

Bob Thompson Painter LLC
PO Box 1208, Park City, UT, 84060; Bob; 435-513-0170; thompsonpc2000@yahoo.com

Steel Coatings
410 South 2650 West, Salt Lake City, UT, 84104;
Matt Hayes; 801-455-8905; matt@steelcoatings.com

The Gateway Company of Utah LLC
1617 N. Chicago St., Salt Lake City, UT, 84116; Kelly Houston; 801-532-2500; khouston@gatewaycompany.com

Goldenwest Painting Inc.
341 West 6100 South, Salt Lake City, UT, 84107; Skyler Biesinger; 801-269-0736; sbiesinger@goldenwestptg.com

Great Basin Industrial
1284 W. Flint Meadow Dr., Kaysville, UT, 84037;
Bridger Lyon; 801-543-2100; BridgerL@mygbi.com

Infinity Corrosion Group, Inc.
1987 Kidd Circle, Park City, UT, 84098; Erik Llewellyn; 801-834-1159

Silverline Finishing Inc.
9501 W. 900 S., Ogden, UT, 84404; Stephen Erekson; 801-690-7159; stephen.erekson@silverlinefinishing.com

Steel Coatings
410 South 2650 West, Salt Lake City, UT, 84104;
Matt Hayes; 801-455-8905; matt@steelcoatings.com

Superior Coatings
565 E. 16th Ave., Salt Lake City, UT, 84103; Josh Manwaring; 801-652-4378; josh.m@superiorcoatingsslc.com

VERMONT

Vermont Protective Coatings Inc.
PO Box 256, Brandon, VT, 05733; Bruce Bove;
802-247-3237; bbove@vtprotectivecoatings.com

VIRGINIA

ADA Technologies
2848 Greenwood Road, Chesapeake, VA, 23321;
Wayne LeGrande; 757-650-2529;
wlegrande@adatechconsulting.com

ASCO - American Stripping Co.
5736 Sellger Dr., Norfolk, VA, 23502; Todd Randall; 757-423-8600; todd@asconorfolk.com

Blue Ridge Coatings & Supply, Inc.
3802 Brambleton Ave. SW, Roanoke, VA, 24018;
David Trail; 540-989-3319; mail@brcsinc.net

Chlomil Inc. dba Phoenix Maintenance Coatings
4500 Oakleys Lane, Richmond, VA, 23231;
Art Proffitt; 804-752-7562

E. Caligari & Son, Inc.
1333 Ingleside Rd., Norfolk, VA, 23502; Dylan Gillham; 757-853-4511; dylan@cp1896.com

EPAcoat, Inc.
4500 Oakleys Lane, Richmond, VA, 23231;
Kimberly Reiff; 804-752-7562; kreiff@epacoat.com

Huntington Ingalls-Newport New Shipbuilding
24317 John Henry Street, Windsor, VA, 23487;
757-380-7738

Bridge & Highway
Chemical Processing
Marine & Shipyard
Offshore Oil & Gas
Power, Conventional
Power, Nuclear
Refinery/Petrochem
Transmission Pipeline
Wastewater Treatment
Water Tanks/Works
Concrete Coating & Repair
Lead Paint Removal
Access & Containment
Shop Painting
Tank Linings
Thermal Spray
Waterjetting

New Kent Coatings
3240 Roxbury Road, Charles City, VA, 23030; Jacqueline Smith; 804-966-2011; jackie@newkentcoatings.com

W.W. Enroughty & Son Inc.
4500 Oakleys Lane, Richmond, VA, 23231; Wayne Enroughty; 804-752-7562; wenroughty@enroughty.com

WASHINGTON

Bear Inspection & Consulting, LLC
2603 Scatter Creek Ct. SW, Tenino, WA, 98589; Richard Bear; 360-791-9109; rbear@bearinspection.com

Coatings Northwest
PO Box 86, Castle Rock, WA, 98611; Mike Brown; 360-232-1266; mikeb@coatingsnorthwest.com

Diamond Polishing Systems
8801 CANYON RD E, Puyallup, WA, 98374; Emily Reese; 252-314-9102; diamondpolishingsystems@gmail.com

Extreme Coatings, Inc.
PO Box 1184, Pasco, WA, 99301; Dan Olson; 509-545-0570; dan@extremecoatings.us

Hancock Sandblast & Paint LLC
2151 East Dock St., Pasco, WA, 99301; Don Gammell; 509-545-5005; dongammell@hsbpcoating.com

HCI Industrial & Marine Coatings, Inc.
PO Box 1573, Brush Prairie, WA, 98606; Randy; 360-260-9250; randy@hci-coatings.com

Hunnicutts Inc.
3910 Bakerview Spur, Bellingham, WA, 98226; Drew Sabrowski; 360-734-9859; daniel@hunnicutts.net

Lawless Construction/CSMI
1511 First Avenue, #709, Seattle, WA, 98101; Mark J. Lawless; 206-233-9800

Long Painting Company
21414 68th Ave. South, Kent, WA, 98032; Bill Newcomb; 253-234-8050; billn@longpainting.com

Long Painting Company
1120 NE 146th Street, Vancouver, WA, 98685; Vince Guymon; 360-952-4400; vinceg@longpainting.com

Northwest Sandblast & Paint, LLC
E. 5916 Baldwin, Spokane Valley, WA, 99212; Dan Ferguson; 509-534-2146; nwsand@yahoo.com

Seattle Painting Specialists
14300 15th Ave. NE, Seattle, WA, 98125; Dev Pontious; 206-366-1750; dpontious@seattlepainting.com

T Bailey, Inc.
9628 South March's Point Road, Anacortes, WA, 98221; Michael A. Jackson; 360-630-5822; mjackson@tbailey.com

Wilbur Fletcher, Inc.
P.O. Box 41, Dayton, WA, 99328; Bruce Larkin; 509-382-4461; blarkin@reagan.com

WEST VIRGINIA

Custom Applicators LLC
1511 Badgley Fork Road, Mineralwells, WV, 26150; Roger Shawver; 304-489-1990

Federal Industrial Services WV Inc.
2724 Staunton Turnpike, Parkersburg, WV, 26104; Michael Rowh; 304-679-3283; mikerowh@cs.com

IPI, INC.
6211 Frame Road Suite A, Elkview, WV, 25071; Joey Taylor; 800-654-6780; ipiinc@wildblue.net

Ridgeline Coatings
58 Hidden CV PO Box 1185, Weston, WV, 26452; Michael Young; 304-517-0389; m.young@ridgelinecoatings.com

Specialty Groups, Inc.
PO Box 96, Bridgeport, WV, 26330; Rob Hamilton or Steve Fox; 304-623-3844; Service@SpecialtyGroups.com

WISCONSIN

Artisan Designs, LLC
2980 County Rd. K, Barneveld, WI, 53507; David Welsh; 608-515-8440; dwelsh@concreteartisan.net

DCS Tank Lining
1344 W. Franklin Street, Appleton, WI, 54914; 920-707-0622

Goldsmith Painting & Cleaning, Inc.
425 Forest Avenue, Sheboygan Falls, WI, 53085; Beth Goldsmith; 920-467-4651; bgoldsmith@goldsmithpainting.com

Howard Grote & Sons Painting Inc.
4900 Ivywood Trail, McFarland, WI, 53558; Kurt Grote; 608-838-6756; krgrote@groteandsons.com

Mid-City Steel, Inc.
115 Buchner Pl., La Crosse, WI, 54603; Sam Tanke; 608-793-2321; samtanke@mid-citysteel.com

Midwest Special Coatings
4740 Ruby Ave., Racine, WI, 53402; Dan Haley; 262-639-8261; h-j@sbcglobal.net

Quality Sandblasting LLC
1144 Ashwaubenon Street, Green Bay, WI, 54304; Sean Glanner; 920-337-2010; sean@qualitysandblasting-gb.com

Schneider & Schneider, Inc.
216 W. McWilliams St., Fond du Lac, WI, 54935; Joe Schneider; 920-921-7575; schneidr@sbcglobal.net

Spiegel Sandblasting & Specialty Coatings, LLC
N 4125 Menzel Road, Tigerton, WI, 54486; Everette Spiegel; 715-535-3179; spiegelsandblasting@gmail.com

Spies Painting, Inc.
N8003 Highway 151, Fond du Lac, WI, 54937; Erik Spies; 920-921-7107; erik@spiespainting.com

Symet Inc.
3282 N. 35th St., Milwaukee, WI, 53216; Stacey Ash; 414-449-8770; info@symet.com

Talatzko Painting Inc.
4000 W. Rivers Edge Cir., Unit 10, Milwaukee, WI, 53209; Mike Talatzko; 414-362-9770; talatzkopainting@aol.com

Team Industries, Inc.
1200 Maloney Road, Kaukauna, WI, 54130; Jon Viestenz; 920-462-1193; jviestenz@teamind.com

WYOMING

AP, inc / Artectural Painting
PO Box 12611, Jackson, WY, 83002; Scott Berger; 307-690-6884; scott@artectural.com

Product and Service Directory

COATINGS EVALUATION & TESTING

CONSULTING

SHOT BLASTING

CONSULTING

TEST INSTRUMENTS

Index to Advertisers

CALENDAR

MAY 2019

SSPC COURSES

Course information available at sspc.org

May 3	Nav Std Item 009-32, Pearl Harbor, Hawaii
May 6–7	C10 Floor Ctg Basics, Phoenix, Ariz.
May 6–9	C3 Lead Pt Removal, Highland, Ind.
May 6–10	Ground Vehicle Corrosion, Portland, Ore.
May 6–10	NBPI NAVSEA Basic Pt Insp, Pearl Harbor, Hawaii
May 6–12	PCI Prot Ctgs Insp, Batam, Indonesia
May 7–8	C7 Abrasive Blast, Theodore, Ala.
May 9–10	C12 Spray App, Theodore, Ala.
May 10	C5 Lead Pt Refresher, Highland, Ind.
May 10	Nav Std Item 009-32, Norfolk, Va.
May 11	Lead Pt Worker Safety, Hammond, Ind.
May 13–14	C7 Abrasive Blast, La Porte, Texas
May 13–15	CAS Ctg App Spclst, La Porte, Texas
May 13–17	C1 Fundamentals, Pittsburgh, Pa.
May 13–17	NBPI, Portsmouth, Va.
May 13–17	C2 Plan/Spec, South Boston, Va.
May 13–19	PCI, Norfolk, Va.
May 14	Thermal Spray App, Norfolk, Va.
May 15	Thermal Spray Insp, Norfolk, Va.
May 15–16	C12 Spray App, Jacksonville, Fla.; La Porte, Texas
May 16	Using PA 2, Norfolk, Va.
May 17	Nav Std Item 009-32, National City, Calif.
May 18	PCS Prot Ctgs Spclst, South Boston, Va.
May 20	Fireproofing Insp, Pittsburgh, Pa.
May 20–21	C6 Power Tool, Newington, N.H.
May 20–24	Ground Vehicle Corrosion, Seattle, Wash.
May 20–24	NBPI, National City, Calif.
May 20–26	PCI, Pattaya, Thailand
May 21–23	CAS, Portland, Ore.
May 21–23	Safety Mgmnt, Pittsburgh, Pa.
May 22–23	QCS Qual Cntrl Spvr, Norfolk, Va.
May 22–23	Shipboard Surf Prep, Newington, N.H.

CONFERENCES & MEETINGS

May 6–9	OTC Offshore Tech Conf 2019, Houston, Texas, otcnet.org
May 13–17	Eastern Ctgs Show 2019, Atlantic City, N.J., easterncoatingsshow.com
May 14–16	Mega Rust 2019, Portsmouth, Va., navalengineers.org
May 20–22	AIHce 2019, Minneapolis, Minn., aiha.org
May 26–31	235th ECS Mtg, Dallas, Texas, electrochem.org

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The number of individual coating failures that occurred at one wastewater treatment plant in an urban/industrial area of eastern Asia.
See page 13.

12

Coating systems — totaling more than 63,000 liters of paint — applied during construction of the EnBW Hohe See Offshore Wind Farm substation, part of the largest planned offshore wind farm project in Germany.
See page 44.

Cr^{6+}

The designation for hexavalent chromium that may be used as a pigment or anticorrosive agent added to paints that is known to cause cancer and target the respiratory system, kidneys, liver, skin, pulmonary system and eyes.
See page 19.

3-to-5 Years

The level of experience (in addition to lead awareness, PPE training and OSHA-mandated training) that one tower-painting contractor requires of its painters before allowing them to work on energized transmission towers.
See page 36.

$1-to-2 Million

The daily cost of a shutdown at a nuclear power facility.
See page 22.

Over 600

Painting companies listed in the *JPCL* 2019 Annual Directory of Industrial Painting Contractors, which includes contact information and details about the applications they provide, as well as the structures they service.
See page 49.