JOURNAL OF PROTECTIVE COATINGS & LININGS / JPCLMAG.COM / JULY 2021

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A Mid-Year Review (Already?!)

I sense that I'm not alone in feeling – after an arduously long 2020 due to various, well-covered reasons – that this year is flying by.

There's no doubt that it has been an action-packed first half of 2021. The release of COVID-19 vaccines and subsequent reopening of the world has seen many of us returning to our offices, taking vacations, eating at our favorite restaurants and resuming business as usual for the first time since the beginning of the pandemic.

In the coatings world, the year opened with a major industry shakeup with the finalizing of the SSPC-NACE merger and the establishment of the AMPP organization – which led to the release of the new, independent JPCL in April. In the proceeding three issues of JPCL, we've covered important industry events, such as the signing of a $2 trillion U.S. infrastructure deal and a number of company mergers and acquisitions, and continued to provide project case histories, technical articles and useful resources like the annual Equipment Buying Guide in the June issue.

Certainly, we hope that all of us in the industry can ride some of this positive momentum heading into the back half of the year. We at JPCL are eager to share our upcoming offerings, including next month's Directory of Industrial Painting Contractors, as well as the Coatings Buying Guide for Steel in the September issue and for Concrete in December. Whether you're a contractor looking to be listed in the Directory, or a coatings supplier with systems for inclusion in the Buying Guides, please reach out to our sales contacts *(see p. 4)* for details.

And in November, Contractor Connect, JPCL publisher Technology Publishing Company's signature annual hosted buyer event for industrial coatings contractors and major equipment and materials suppliers, will return to the Hammock Beach Resort in Palm Coast, Florida. In addition to scheduled one-on-one meetings between contractors and suppliers, the Contractor Connect itinerary includes casual social events such as golf, fishing and a visit to the Daytona International Speedway, giving attendees further opportunities to not only network for business, but take lasting memories home with them, as well. If you're interested in attending, visit paintsquare.com/contractor_connect.

Charlie Lange

I wish all our readers the best of luck for the rest of 2021, and hope to get the chance to speak with some of you in person at industry events later this year!

Charlie Lange
Editor-in-Chief, JPCL

PHOTO: COURTESY OF THE EDITOR

FEATURE

28 Selecting the Right Abrasive for a Better Blast

BY JOHN HALEWOOD, CONSULTANT

The first step toward better blast-cleaning is understanding the many ways in which abrasive blasting directly affects not only the coating, but also the productivity and, ultimately, the profitability of the painting project. The author considers the effect different abrasives can have on the various aspects of a maintenance painting project.

JULY 2021

JPCL

VOL. 38, NO. 7

FEATURES

DEPARTMENTS

ALSO IN THIS ISSUE

ON THE COVER

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About...

JPCL
JOURNAL OF PROTECTIVE COATINGS & LININGS

THE JPCL PRESTIGE AWARDS

A New Home for the Protective Coatings Industry Honors

The editors of JPCL are pleased to announce that **nominations will open Aug. 1** for the annual Prestige Awards program, which recognizes the top people, products and projects in industrial coatings. Formerly known as the PaintSquare Prestige Awards, the program is now officially administered by the *Journal of Protective Coatings & Linings.*

For the first time, we will promote the contributions of our selected nominees in the print and digital editions of JPCL and, later in the year, the 2021 Prestige Award winners will appear in a JPCL cover story. Over the coming months, you'll see ongoing coverage, including profiles of our industry-leading judges, nomination previews, a recap of the 2020 awards program and more. This is an exciting opportunity for recognition in the industry's premier publication!

Experts on our judging panel look forward to reviewing what we expect to be a deep field of nominations from all industry sectors. **Be sure to visit paintsquare.com/prestige to submit your Prestige Awards nomination by Oct. 1. Categories include the following.**

TOP PEOPLE (3 Categories, 1 Award Each)

1. In the Field: Contractors

2. In the Lab: Formulators

3. In the Office: Executives

Each will be judged on these criteria: **Industry Impact, Personal Achievement, Professional Interaction** and **Extracurricular Involvement**

TOP INNOVATIONS (2 Categories, 1 Award in Each)

1. Coatings

2. Equipment

To be eligible for this honor, the nominated product must have been brought to market between January 2020 and January 2021. Nominate products from your own company or another company.

TOP PRODUCTS (6 Categories, 1 Award in Each)

The Prestige Awards will also honor individual coating and equipment products nominated by the JPCL/PaintSquare audience. Categories for the Top Product awards will include the following.

Equipment

1. Surface Preparation and Coatings Application
2. Safety and Access
3. Inspection

Coatings

4. Coating for Steel
5. Coating for Concrete
6. Specialty Function (Intumescent, Anti-Graffiti, Anti-Fouling)

CONT. P. 47

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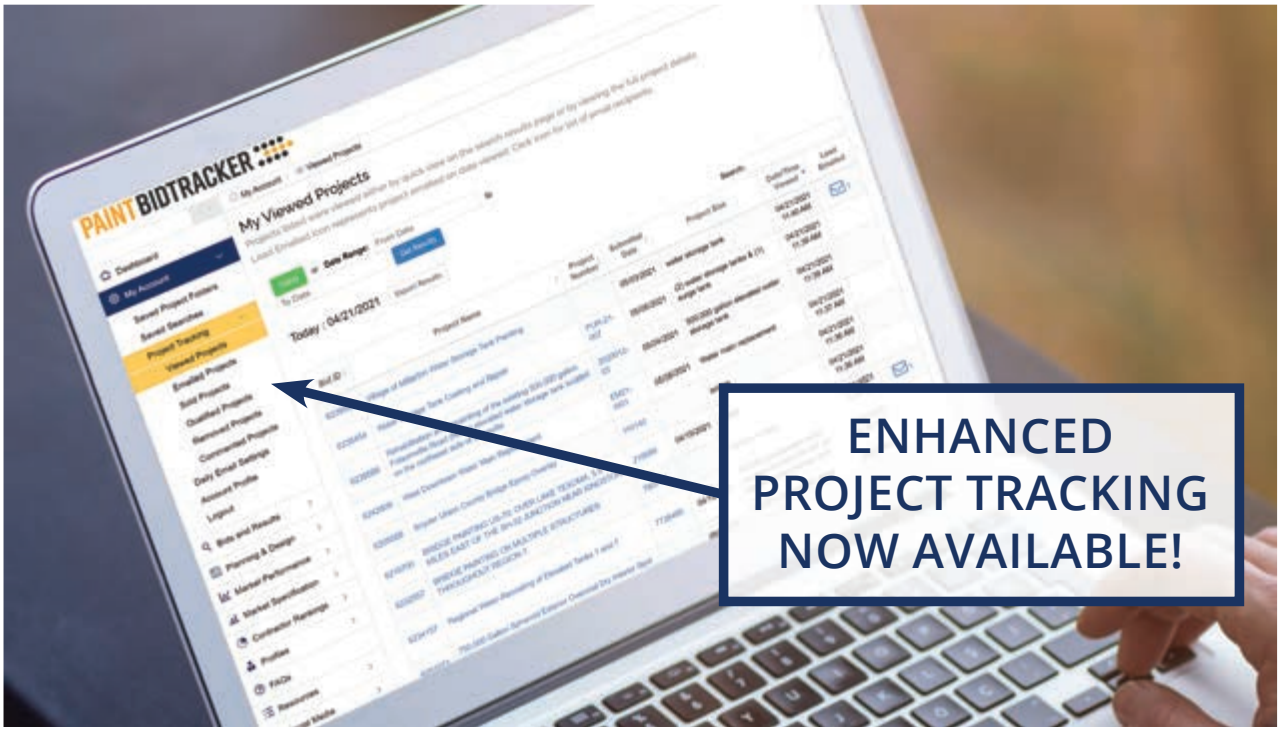

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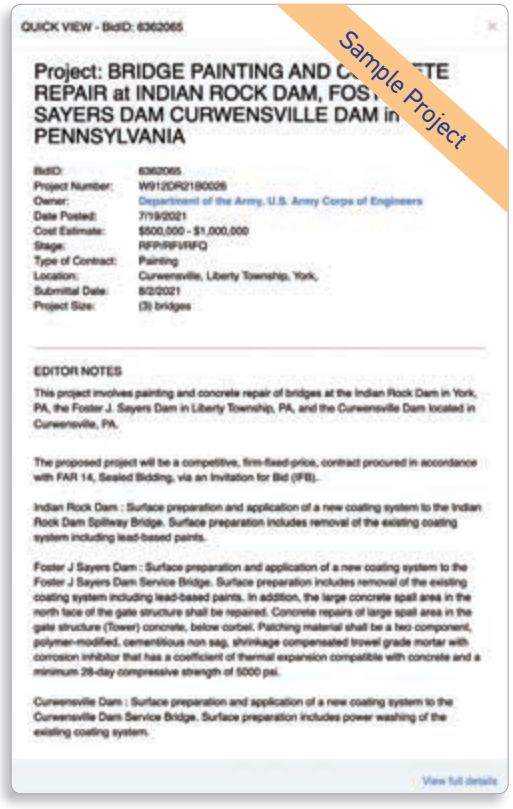

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- Awarded a $673,714 project in May 2020
- Awarded a $677,554 project in May 2020
- Awarded an $89,750 project in April 2020
- Awarded a $328,000 in February 2020

TOTAL WON: $2,290,518

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From Technology Publishing Co., producer of: Paint BidTracker, Contractor Connect, *JPCL*, *PaintSquare Daily News*

COVERAGE

CURRENT EVENTS, CONVERSATION, CALENDAR UPDATES AND MORE FROM THE PEOPLE AT PAINTSQUARE.COM

MERGERS & ACQUISITIONS

Hempel Acquires New Coatings Technology

Global coating supplier Hempel A/S announced at the beginning of June that it had acquired what it calls a "ground-breaking coatings technology" slated to enhance the insulation coatings market. The technology was obtained by developer Das Lack Enertherm, a German-English company, and was acquired as part of Hempel's new Double Impact strategy that aims to see the company double its revenue to 3 billion euro by 2025 and create leadership positions in the Energy segment.

"With this technology acquisition, we are now able to penetrate the insulation coatings market and bring new business opportunities to Hempel," said Martin Wiese, Head of Hempel's Protective and Industrial Business. "This is an important next step to support our journey towards segment leadership within Corrosion Under Insulation, High Heat and Insulation, as well as our Double Impact strategy."

With plans to develop and launch coating products with insulating properties within the next year, the new coatings technology is also slated to enhance workers' safety and lower customers' environmental footprint. By offering customers better insulation choices, the company hopes to reduce the ever-present risk associated with CUI.

"Apart from the product properties, our new insulation coatings will also lower our customers' carbon footprint and will reduce heat loss significantly compared to current insulation coatings – both of which mean we will be helping our customers deliver on their sustainability agendas," concluded Simon Daly, the company's CUI & High Heat Global Business Development Manager.

ILLUSTRATION: KANAWA_STUDIO / GETTY IMAGES; PHOTO: NOSTALGIE / GETTY IMAGES

Carboline Announces Dudick Acquisition

In early June, St. Louis-based protective coatings manufacturer Carboline Company announced its acquisition of global coatings supplier, Dudick Inc.

Dudick, headquartered in Streetsboro, Ohio, is known for its high-performance coatings, flooring and tank linings. According to Carboline's press release, Dudick will remain a stand-alone brand within Carboline sold by both the existing Dudick teams as well as the global Carboline direct sales teams. Customers can expect to receive the same quality products and service they have become accustomed to with Dudick, but with the additional benefit of more distribution points and an expanded team to better serve customers.

"We are excited to welcome the Dudick brand into the Carboline family. This acquisition fits into our diversification strategy by giving us an expanded product portfolio in secondary containment, flooring, and water wastewater," said Chris Tiernay, President of Carboline.

> "This acquisition fits into our diversification strategy by giving us an expanded product portfolio in secondary containment, flooring, and water wastewater."
>
> *— Chris Tiernay, President, Carboline*

PHOTO: NOSTALGIE / GETTY IMAGES

IN RESPONSE TO

"FL Court Rules 'Act of Nature' on Corrosion, Rust"

(*PaintSquare Daily News*, June 30)

A Florida court recently ruled that rust and corrosion of water pipes is considered an "act of nature." The ruling made by Florida's Fourth District Court of Appeals thus excluded the insured's water overflow incident from coverage under their homeowner's insurance policy.

By observing that rust is a form of corrosion caused by a chemical reaction that occurs within the presence of iron and moist air, the judge found corrosion to be an "act of nature" in that it is "the doing by chemical action of the inherent character of the thing – the wearing away of iron by moist air."

In conclusion, the judge ruled that the policy term "act of nature" did not require an uncontrollable or unpreventable event, and excluded damage caused by natural forces.

Alan Murray:
"Corrosion is inherently a natural process, but is it: a) controllable and/or b) preventable? I'd say the [insured] got the short end of the stick here."

PROBLEM SOLVING FORUM

If an atmospheric coating system of a zinc-rich epoxy, epoxy mid coat and polyurethane color topcoat has properly cured with no visual defects, should I be worried if the thickness of any coat exceeds any specified maximum?

Spiros Pavlakis, Hempel:
"There is a reason why there is a maximum DFT for each layer. Overapply and you'll have a system which visually will be OK, but depending on which layer has been applied outside the producer's recommendations, you can find yourself with a painting system that has different properties (anticorrosive, mechanical, aesthetics)."

Michael Beitzel, Modjeski and Masters:
"Not necessarily, but you should always be concerned when the thickness exceeds the manufacturers maximum thickness for any coat. The manufacturer should be contacted for any remedial recommendations and/or any changes in curing time."

Rob Francis, R A Francis Consulting:
"Epoxies and polyurethanes are fairly tolerant of over-thickness. For atmospheric applications, you will probably be OK unless it is an application like aircraft or shipping where weight is critical. Tank linings subject to temperature fluctuations are a different matter."

QUIZ

TRUE OR FALSE? Industry consensus states <20 mg/m² as the maximum allowable level of soluble salts allowed to be present on a surface prior to coating application.

Gunnar Ackx:
"And there will never be such an industry consensus, because the allowable levels would highly depend on a number of factors such as, but not limited to: 1) the coating system itself (type of products, number of layers, thickness; 2) the environment to which the coating will be exposed; and 3) the expected service life. There is no one single value that will fit all in this case."

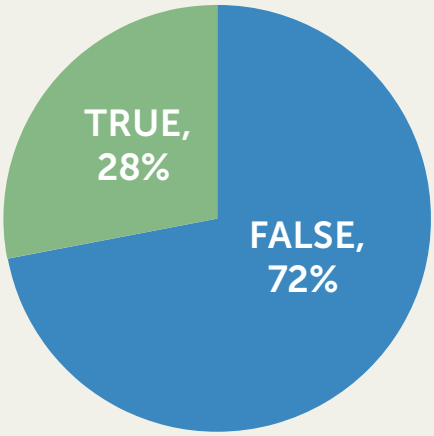


CHART: DANIEL YAUGER

SCHEDULING ALERT

European Coatings Show Canceled

Vincentz Network, organizer of the European Coatings Show, and NürnbergMesse, jointly announced on June 7 that the 2021 European Coatings Show has been canceled. The exhibition for the international paint and coatings industry was rescheduled for Sept. 14-16 after being first postponed because of the COVID-19 pandemic. Officials said that the cancellation decision comes after close consultation with exhibitors and industry representatives, citing international travel as the main concern.

"For the European Coatings Show, the exhibition venue in Nuremberg becomes home to the global coatings industry every second year. Because of the continuing travel restrictions, we cannot be sure to be able to uphold that undertaking at present," said Amanda Beyer, Director Event Management for Vincentz Network.

The next show, organizers say, is slated for March 28-30, 2023, resuming the show's regular schedule.

ONLINE ALTERNATIVE

A virtual version of the 2021 conference will be available from September 13–14 at european-coatings-show.com.

"We are pleased to be able to offer an alternative in the form of the digital Congress in September, where the international industry can meet at a virtual level to share knowledge and cultivate contacts," added Beyer. "We will gather in Nuremberg again in March 2023 and catch up on everything we have been unable to do in recent months. We are looking forward to this opportunity to see each other again in this way."

PHOTO: JOTILY / GETTY IMAGES

APPLICATOR TRAINING BULLETIN

Holiday detection is a key step during the coating inspection process to prevent premature failure.

PHOTO: COURTESY OF KTA-TATOR, INC.

HOLIDAY DETECTION

UPDATED FUNDAMENTALS

A coating must be applied as a continuous film to perform its intended function. Early failure will occur if there is a discontinuity – a holiday, as it is commonly called – such as a pinhole, void, crack, thin spot, foreign inclusion or contaminant in the coating film. Many of these defects are not readily visible, but they can be located using holiday detection equipment.

Holiday detection is typically performed on coating systems designed for critical service such as immersion or chemical storage. It is also conducted on coating systems applied to steel that is in contact with soil and/or constantly wet. Examples include buried pipelines, the undersides of tanks and sheet pilings.

This month's Applicator Training Bulletin discusses how holiday detectors work, the operation of low-voltage and high-voltage detectors on coated steel, holiday detection of coatings on concrete substrates, and repair of holidays.

Principles of Operation

Holiday detectors are instruments that use electricity to locate film discontinuities. Most coatings are poor electrical conductors, and so they act as insulators. On the other hand, a metallic substrate – such as steel – is conductive to electricity.

A holiday detector consists of a power source, a ground wire, a probing electrode and an indicator. (Note: the terms "ground" and "grounding" in this article are synonymous with "earth" and "earthing.") Current would flow if the leads of the ground wire and the probing electrode were attached to the power source and

Editor's Note: The original version of this ATB was written by Lloyd M. Smith, Ph.D., (then with Corrosion Control Consultants) and published in the March 2001 JPCL. It has been updated for this issue by JPCL staff.

their tips were touched. If the ground wire was connected to a coated piece of steel and the probing electrode was placed on the coating surface, the coating would act as an insulator, and no current would flow. However, if a holiday was present in the coating, there would be a pathway for the current to flow. Holiday detectors have an indicator such as a sound or a light to tell when current is flowing. So, when the indicator shows current flow, it means a holiday is present.

Some coatings, especially zinc-rich primers, are excellent electrical conductors because of the conductive nature of the zinc particles, and so holiday testing cannot be performed on them. However, if a topcoat of a non-conductive coating such as an epoxy or urethane is applied over the conductive primer, the holiday test would be valid. In this case, the holiday test would not distinguish between a discontinuity that reaches only to the primer and one that reaches to the substrate.

Low-Voltage Holiday Detectors

Low-voltage holiday detectors are used on coatings that are thinner than 20 mils (500 microns). They are powered by a self-contained battery with a voltage that ranges from 5 to 90 volts direct current, depending on the manufacturer. Low-voltage holiday detectors have either a buzzer or a light to show when current is flowing. The probing electrode consists of an open-cell sponge, similar to one used on a household sponge mop.

The coating must be sufficiently dried or cured prior to running the holiday test because retained solvents in the coating can give false results. Check with the coating manufacturer about when a holiday test can be performed on a fresh coating. Also, measure the dry film thickness to make sure it is less than 20 mils (500 microns). If holiday detection is required for coatings thicker than 20 mils, then the high-voltage method is recommended.

Follow the manufacturer's instructions for assembling the unit. Differences do exist among commercial instruments, but they all require attaching the ground wire to one terminal on the power supply and the probing electrode to the other.

The sponge must be wetted with tap water. Don't use distilled water because it must be able to support a current, and that requires some conductive impurities, which are removed when water is distilled. There is no need to add salt to the water to improve conductivity. Doing so would only spread a corrosive contaminant on the surface. However, the water must be able to flow into the smallest of pinholes, so

a low-sudsing wetting agent (surfactant) is often added to the water. (Some people believe that a wetting agent is not needed if the coating thickness is less than 10 mils [250 microns]. Others do not recommend the use of detergent as a wetting agent because excessive detergent can block pinholes after testing, giving the appearance that the coating has "healed" itself.) Soak the sponge until it is soft, pliable and saturated. Then squeeze the sponge to remove any extra water. The water should barely drip when the sponge is moved over the coated surface.

Turn on the power supply after the unit has been assembled,

> Holiday detectors are instruments that use electricity to locate film discontinuities. Most coatings are poor electrical conductors, and so they act as insulators. On the other hand, a metallic substrate—such as steel—is conductive to electricity.

and check the instrument by touching the sponge to the clamp on the ground wire. This action should complete the electrical circuit and cause the light or buzzer to turn on. If it does not, check the connections, the wires, the battery, and the wetness of the sponge. There really are not many things that can go wrong.

To perform the holiday test, attach the clamp on the ground wire to the structure. It must be in direct contact with the metal. The easiest place to attach the clamp is a nut, a bolt or an edge. Scrape or sand the paint away so the clamp has good contact with the metal. Be sure to repair these areas after the testing is done.

Also, make sure the instrument is properly grounded by touching a bare spot on the metal with the probing electrode. The bare spot can be anywhere, including the back surface of the structure. If there is no access to bare metal, make (and mark) a small holiday in the coating. This should be above the fill line of a tank or in an area where a discontinuity will have the fewest consequences. The easiest place is near the ground clamp, as that area will have to be repaired anyway. Periodically check that the equipment is still grounded properly.

Place the sponge flat on the surface and move it across at a moderate rate (i.e., 1 ft/sec [0.3 m/sec]). Apply sufficient pressure so that the surface appears wet just behind the sponge. Remoisten the sponge if it dries out. The indicator light or buzzer will activate when a holiday is found. Turn the sponge on end when this occurs and relocate the holiday. Mark the area with chalk or an easily removable material that is compatible with the repair coating.

Resume the holiday testing after the area has been marked. It will be necessary to dry the area near the holiday or to leave a small space so the current does not travel back through the water to previously found defects.

The holiday test must be performed over the entire surface. Therefore, it is best to perform the test in a regular pattern, similar to a pattern used for spray painting. Pay special attention to nuts, bolts, washers, rivets, etc. The sponge will not conform to the entire surface when dragged over a bolt or a nut and threaded shaft, for example. In this case, it is easier to use one of the ends of the sponge. It may be necessary to reposition the ground clamp due to the length of the ground wire. Don't forget to mark the areas where the clamps were attached so they can be repaired.

Some people prefer to perform low-voltage holiday testing before the final coat is applied. The reason is that if a holiday is found after the final coat is applied, the repair coating over the holiday will be thin. Testing for holidays and then repairing them before application of the final coat will achieve additional coating thickness over the holiday. However, for holiday testing between coating layers, use plain water without a wetting agent so as not to leave a thin layer of contaminant on the surface that might reduce adhesion.

High-Voltage Holiday Detectors

High-voltage holiday detection is used when a coating is thicker than 20 mils (500 microns). The basic components of high-voltage detectors still include a power supply, ground wire, probing electrode and indicator. However, the power supply for these units will provide thousands or tens of thousands of volts, and the probing electrode will be made of copper wires or carbon-embedded rubber.

For personal safety, extreme care is needed when using high-voltage holiday detectors. These units generate relatively

"Low-voltage holiday detectors are used on coatings that are thinner than 20 mils (500 microns). They are powered by a self-contained battery with a voltage that ranges from 5 to 90 volts direct current, depending on the manufacturer ...

"High-voltage holiday detection is used when a coating is thicker than 20 mils (500 microns). The basic components of high-voltage detectors still include a power supply, ground wire, probing electrode, and indicator. However, the power supply for these units will provide thousands or tens of thousands of volts."

low current while in use, which is good because high current can be quite dangerous. However, when you use a high-voltage probe in an electrically isolated environment, you can become charged to the test voltage, which can cause you quite a shock from a build-up of static electricity. The shock itself is not particularly dangerous, but how it causes you to react can be quite dangerous, especially if it prompts you to jump or fall. Always keep the working end of the probing electrode away from your body and do not touch it when the instrument is activated. Read the operating directions carefully.

Not all high-voltage detectors have batteries, but most of them do these days. Some are powered by plugging them into an electrical outlet; some use rechargeable batteries; and some use dry cells. If there is a battery, check it for proper voltage output before running any tests. (Refer to the manufacturer's instructions.) Then connect the probing electrode and grounding cable to the terminals of the detector and switch the instrument on. Touch the probing electrode to the alligator clip on the grounding cable and make sure the instrument signal activates.

A high-voltage holiday detector causes the air between the probe and the substrate to conduct electricity, or break the air gap in the holiday, as it sometimes is called. The size of the air gap will vary with coating thickness, and breakdown of the air gap will depend

There may be an explosive environment in an enclosed area or a confined space if the coating being tested hasn't fully dried and solvents are still present.

PHOTO: COURTESY OF DEFELSKO CORP.

on atmospheric conditions such as relative humidity. A non-conductive spacer such as a thin piece of plastic that is the same thickness as the coating layer can be placed on a bare steel surface to test whether the detector will cause a spark to jump through the spacer. If it does, the test voltage is too high.

Setting the proper voltage is critical because too high a voltage may actually produce a holiday in the coating film rather than test for it. The first step, therefore, is to determine the voltage to use. This is based on the thickness of the coating and its insulation properties. Set the instrument to the proper voltage according to the manufacturer's instructions for the coating thickness being tested, because using a high-voltage holiday detector on a coating that is too thin can produce holidays in the coating film. Likewise, verify the voltage calibration in accordance with the manufacturer's instructions and calibrate the instrument if necessary.

> "The hazards of high-voltage holiday detection cannot be overly stressed. Do not touch the head of the probing electrode, and keep the probing electrode away from your body at all times when the instrument is turned on."

Operating a high-voltage holiday detector is very similar to using a low-voltage holiday tester. The grounding cable is attached to the steel substrate and the detector is checked by touching the probing electrode to bare steel. Move the probing electrode over the surface in a single pass at a rate of approximately 1 ft/sec (0.3 m/sec). When

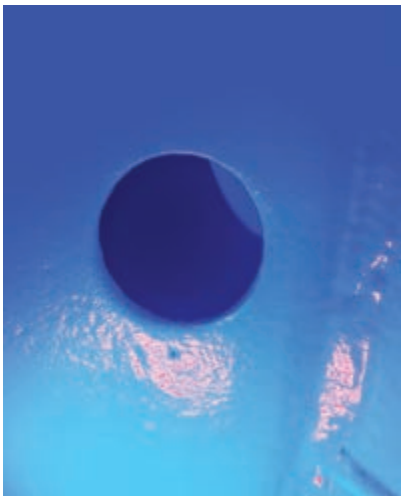
the instrument signals a holiday, go over that area slowly while watching the head of the probing electrode. You will be able to see a blue spark and can then mark the spot for repair.

Special accessories are available for performing high-voltage holiday testing on pipes and pipelines. These include half- or full-circle coiled spring electrodes. A special ground wire to give the operator more mobility can be used if the pipeline segments are grounded to earth. The ground wire is about 23 ft (7 m) long and is dragged along the ground rather than attached to the steel. If no holidays are found, occasional checks should be made by touching the probing electrode to the steel to see if a spark and signal occur. If not, the ground wire may be dirty or the soil may have very high resistance (i.e., be very dry). If so, a ground cable with an alligator clip attached to the bare metal will have to be used instead.

The hazards of high-voltage holiday testing cannot be overly stressed. Do not touch the head of the probing electrode, and keep the probing electrode away from your body at all times when the instrument is turned on. After the instrument has been turned off, always ground the probe before disassembling the unit to ensure that any residual charge has dissipated. Also, remember that there may be an explosive environment in an enclosed area or a confined space if the coating being tested hasn't fully dried and solvents are still present. Do not use holiday detectors in these circumstances.

Holiday Testing on Concrete Substrates

Coatings applied to concrete substrates can also be tested for discontinuities using either low-voltage or high-voltage holiday detectors, depending on the coating thickness. Concrete can be conductive depending on its moisture content, the type



Optically active pigments can make the coating react to ultraviolet light, which allows for quick, non-invasive holiday inspection.

and density of concrete, and the location of the reinforcing steel (rebars or wire mesh).

Before coating testing, the concrete must be tested to determine if it is conductive. Set up the holiday detector by attaching the ground wire to the reinforcing steel, making sure it is not coated metal. If the reinforcing steel is not accessible, the ground wire can be placed on the bare concrete surface and weighted with a damp cloth or paper and a sand-filled bag, or attached to a metal rod or nail driven firmly into the concrete. Touch the probing electrode to another bare spot on the concrete and see if the instrument responds.

A conductive underlayment will be needed if the instrument does not respond. Most conductive underlayments are coatings containing carbon or graphite fillers or conductive polymers. The underlayment must be compatible with the lining material, as it will be part of the coating system. The underlayment can be a primer, if so formulated, or an intermediate coat, depending on how the coating manufacturer designs the system. The holiday test is performed as previously described for low-voltage and high-voltage instruments, depending on the coating thickness, except that ground is now made to the underlayment.

In general, if the concrete is not conductive and a conductive underlayment is not incorporated into the system, then high-voltage holiday detection would not be possible.

Because of expansion joints or construction joints in concrete structures, there may not be electrical continuity between sections. Therefore, it will be necessary to check the response of the holiday detector when moving to a new panel. If electrical

PHOTOS: COURTESY OF SHERWIN-WILLIAMS PROTECTIVE & MARINE

continuity does not exist, move the ground connection to the panel being tested.

Optically Active Pigments

Coatings are now available with fluorescing additives, which allow inspectors to easily identify holidays in the coating. These optically active pigments (OAP), or additives, make the coating react to ultraviolet (UV) light, which allows for quick, non-invasive holiday inspection. They work with single, or two-coat systems. When viewed with UV light, a single-coat system with the additive will fluoresce, and holidays will appear darker in contrast to the fluorescing coating surface, and in areas of low film thickness will appear duller. If the primer in two-coat systems contains the OAP, and the topcoat does not, holidays will appear as spots of fluorescence.

Summary

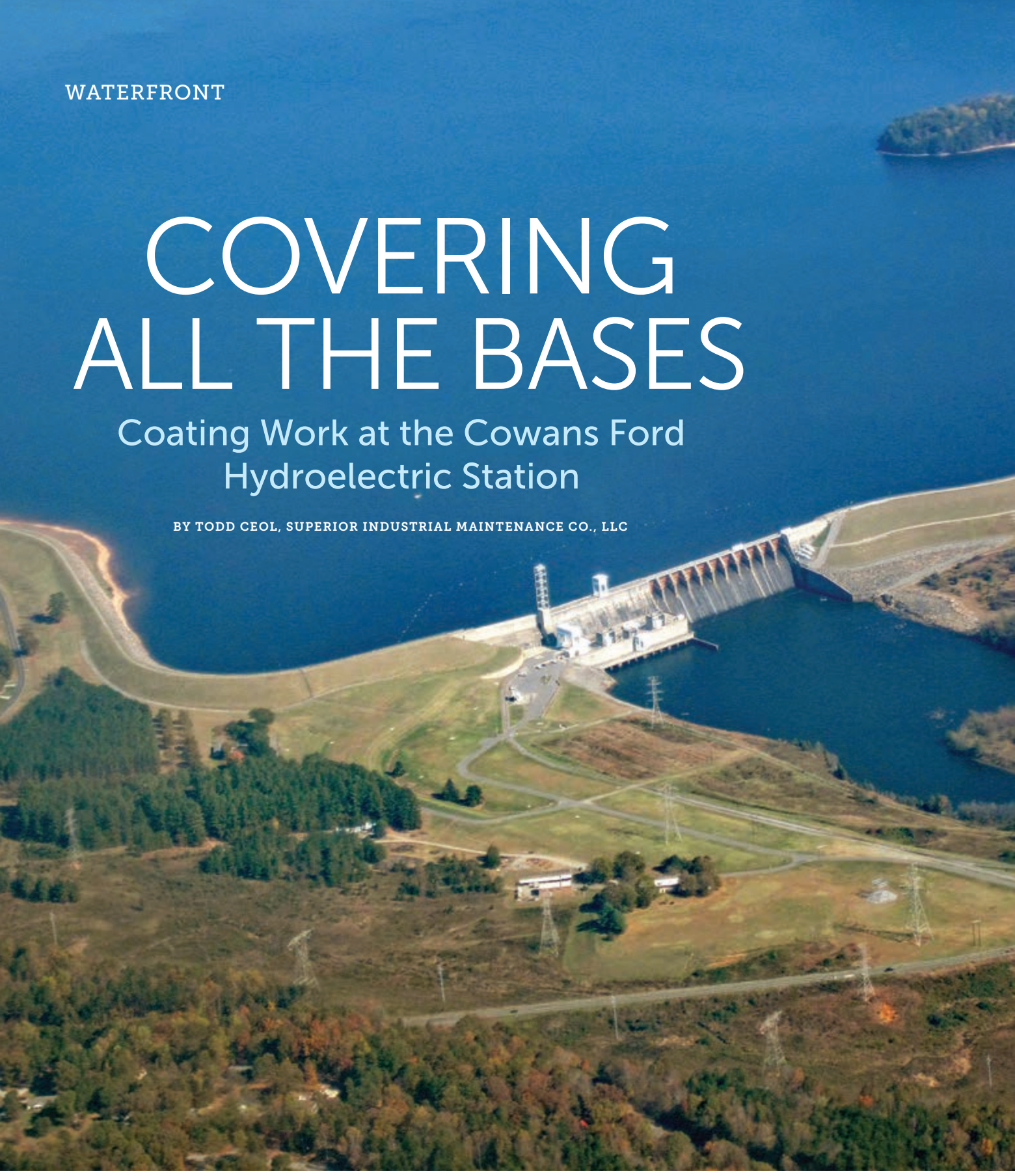
Holiday testing is used to find coating film discontinuities that are not readily visible. Holiday testing is usually performed on tank interiors, chemical storage vessels and buried structures because of the importance of maintaining adequate coating protection in aggressive service environments. Low-voltage holiday testing is used when the coating system is less than 20 mils (500 microns) thick. High-voltage holiday testing is used when the coating system is thicker. High-voltage holiday testing requires special care not to damage the coating or cause personal injury to the operator.

Irrespective of which method is used to detect holidays, they all need to be repaired after testing is completed, and it is important to repeat the holiday test after the repair work to show that it has been successful. However, only the repaired areas need to be tested again. JPCL

COVERING ALL THE BASES

Coating Work at the Cowans Ford Hydroelectric Station

BY TODD CEOL, SUPERIOR INDUSTRIAL MAINTENANCE CO., LLC



Coating projects range in size and scope, and while even the smallest projects require care and attention to detail, the stakes tend to rise as the scale of a project increases. Such was the case when work was needed at the Cowans Ford Hydroelectric Station in North Carolina ***(Fig. 1)***, the largest conventional hydroelectric plant owned by one southeastern U.S.-based energy provider. At peak demand, the plant is reportedly capable of producing power for roughly 280,000 local homes, so keeping it well maintained and running efficiently is clearly of critical importance.

A multi-year coating rehabilitation project was recently completed at the plant, which caused the selected coating contractor to get creative with its means and methods of completing the required work. This article details how the contractors utilized cranes, barges, an onsite layaway building and a climate-controlled paint shop – all while communicating with the facility owner, multiple subcontractors and third-party inspectors and adhering to stringent environmental guidelines – to finish the job.

LARGE PHOTO: JAMES ST. JOHN, CC BY 2.0 VIA WIKIMEDIA COMMONS; SMALL PHOTO: COURTESY OF THE AUTHOR

FIG. 1: At peak demand, the Cowans Ford Hydroelectric Station can produce power for approximately 280,000 households.

FIG. 2: **Intake pieces were disassembled before being transported by crane to an onsite building for repairs, blasting and coating.**

PHOTO: COURTESY OF THE AUTHOR

Scope of Work

The project was an open bid to select approved contractors for the work on the facility owner's system. The overall scope of work included the refurbishing of 11 tainter gates, 12 intake gates, two sets of stop logs, six tailrace gates, five miscellaneous cranes and other associated items at the plant.

The contract was awarded in a competitive bid situation, though the contractor had completed blasting and painting projects in the past for the facility owner. This project had a large mechanical aspect to it and the contractor's in-house mechanical crews were able to make the bid more competitive by self-performing the mechanical portion of the work.

Project Sequencing

The first sequence of the project involved civil work, the pouring of a concrete pad and the erection a 42-foot-wide, 17-foot-tall, 140-foot-long building in a laydown area dedicated by the facility owner. The building was equipped with dehumidification and climate control equipment, dust collectors, air compressors and all of the necessary blasting equipment. The coating of the larger components included in the project was completed at this onsite building.

Next, the contractor began removing the pieces from the tailrace slots

FIG. 3: **Crane picks were coordinated with a crane subcontractor to get the intake pieces to the onsite building.**

and intake slots ***(Fig. 2)***. It is important to keep in mind that each tailrace gate consisted of one piece, but each intake gate had to be disassembled to form three separate pieces. The stop log pieces were also individual pieces, with two sets of stop logs consisting of eight total pieces.

The contractor teamed up with a crane subcontractor for all of the project's crane and shipping needs, including transport of these items to the onsite building ***(Fig. 3)*** and the contractor's blasting and coating shop. Use of the crane proved to be one of the biggest challenges on the project, as each crane pick had to be scheduled in advance and include a facility owner-approved crane safety plan. It took multiple trailers to get the crane to the site, which created congestion onsite during transport. Weather conditions were continuously monitored, and high wind advisories caused the rescheduling of several crane picks throughout the project, as well. However, due to pre-planning and communication between the contractor, the crane subcontractor and the facility owner, these challenges were overcome and the process went smoothly and without incident from the first pick to the last.

After the pieces were placed in the onsite building, the contractor blasted the steel to an SSPC-SP 10/NACE No. 2 Near White Metal Blast to remove the existing lead paint. The

PHOTO: COURTESY OF THE AUTHOR

FIG. 4: Intake and tailrace pieces received two stripe coats and three full coats of a polyamide epoxy coating.

pieces were then inspected by the facility owner to identify any needed repairs; after these were performed, the items were re-blasted and coated with two stripe coats and three full coats of polyamide epoxy at 4–6 mils' DFT per coat ***(Fig. 4)***.

Per the specifications, the blasting and coating process had certain hold points that had to be adhered to before moving on to the next step. The facility owner had a third-party inspector who effectively worked with the contractor's NACE Level II-certified inspector to identify any quality control issues and limit project downtime. The coating was holiday tested and any defective areas were repaired. Caulking was completed on any back-to-back angle

PHOTOS: COURTESY OF THE AUTHOR

areas per the facility owner's specifications. After final inspection, the items were set in a laydown area before being reinstalled back in the water ***(Fig. 5)***, and additional pieces were removed to bring back to the onsite building.

During this same time, the contractor took the smaller pieces approximately 45 minutes away to its SSPC-QP 3-certified shop with a climate-controlled blast and paint booth, where blasting and coating was completed. These smaller pieces only amounted to about 10% of the total project; the contractor had hoped to complete more pieces in the shop, but some of the larger project components would not fit in the booth.

After work on the intake, tailrace and stop log pieces commenced, the contractor started work on the tainter gates – which were kept in place – with a completely different crew and separate equipment. All of the equipment to complete the work on the tainter gates had to be set on barges, which were supplied by the facility owner ***(Fig. 6, next page)***.

Environmental hazards were a significant part of the complexity of this job, based on the existing lead paint involved and the work taking place so close to the water, requiring scaffolding and containment by a subcontractor ***(Fig. 7, next page)***. The contactor blasted and coated each tainter gate to the same specifications,

FIG. 5: Finished intake pieces were moved to a laydown area before being placed back in the water.

PHOTO: COURTESY OF THE AUTHOR

FIG. 6: Blasting and coating equipment for the tainter gates was placed on barges supplied by the facility owner.

though the downstream side of each gate received one coat of an epoxy at 4–6 mils DFT and one coat of an acrylic polyurethane finish coat applied at 3–5 mils DFT ***(Fig. 8)***.

Blasting and coating work on each gate was performed in three quadrants to minimize the risk of flash rusting. Even though dehumidification equipment was running inside of the containment, the crews still battled environmental conditions, especially when it rained.

As with the shop work, after each blast, the facility owner inspected the blast and the contractor performed minor repairs. After completion of the first tainter gate, the facility owner designated which gate would be completed next and that is how it went completing all 11 gates – one at a time.

The cranes were among the last items painted toward the end of the job, and these components were simply pressure washed and repainted.

In total, approximately 197,000 square feet of surfaces were coated, with more than 5,500 gallons of paint used. The contractor containerized all the blasting media during the job, and the facility owner tested the waste to confirm that it was hazardous and disposed of it properly. At the end of the job, the contractor demobilized and left the onsite building for the owner for storage instead of disassembling it.

FIG. 7: Containment and scaffolding structures were constructed around tainter gates during the project.

PHOTOS: COURTESY OF THE AUTHOR

FIG. 8: **The downstream sides of the tainter gates received an additional coating of epoxy and an acrylic polyurethane finish coat.**

PHOTOS: COURTESY OF THE AUTHOR

Conclusion

This was the largest single lump-sum contract the contractor has been awarded, and projects this large have to be managed correctly – or the job can go south in a hurry.

Constant communication was paramount on a project of this size and complexity. With so many moving parts, weekly schedule updates and ongoing communication with the field on safety, quality control and production updates was essential. Having an experienced superintendent and full-time safety manager onsite dealing with daily issues alleviated a host of concerns. In the end, it might be cliché, but being prepared is half the victory – and it was for this project. JPCL

ABOUT THE AUTHOR

Todd Ceol is a Senior Project Manager and co-owner of Superior Industrial Maintenance Co., LLC, an industrial coatings and linings contractor based in Concord, North Carolina. He has more than 20 years of project management experience with the company, is a NACE Level II-certified Coating Inspector and completed the OSHA Construction Industry 10-hour training course.

SELECTING THE RIGHT ABRASIVE FOR A BETTER

Understanding the origin and properties of different blast media can help you choose the safest and most effective solution.

RISK

BY JOHN HALEWOOD, CONSULTANT

Protective coatings are well-known as the first line of defense against corrosion of ferrous and non-ferrous metal substrates, and it has long been accepted that these surfaces need to be prepared correctly before coatings are applied. The surfaces should be free of any contamination from grease, oils, loose debris, mill scale, rust, moisture and water-soluble salts. They should also be properly prepared to aid adhesion of the subsequent coating.

This preparation can be carried out by several methods, although abrasive blast-cleaning is widely considered the most effective for onsite use. Abrasive blasting removes contaminants from the surface to be painted and produces an anchoring surface profile to ensure proper adhesion.

The quality and the speed of the process will depend mainly on the abrasive being used. However, in many cases, the protective coating is chosen first and surface preparation is almost an afterthought. Despite playing second fiddle to the finished product, appropriate abrasive selection is critical to ensuring a high-quality and long-lasting paint job.

The first step toward better blast-cleaning is understanding the many ways in which abrasive blasting directly affects not only the coating, but also the productivity and, ultimately, the profitability of the painting project. First and foremost, the abrasive must perform the job for which it was created. It should produce a clean substrate with an appropriate surface profile which satisfies the needs of the subsequent coating. However, there's more to a clean surface than meets the eye.

If an abrasive leaves rough peaks, more paint will be required to fill the excessive voids and to cover the high points. Surface texture directly impacts paint consumption, performance of the protective coating and, ultimately, the life of the asset.

Abrasive blast cleaning can raise health and safety and environmental concerns, linked in part to the type of abrasive being used. Firstly, there is the dust produced which can depend on the friability of the abrasive, then there is the composition of the abrasive itself, which may include toxic components, and finally the waste generated by blast cleaning can in some cases, be classified as hazardous, requiring compliance with special disposal regulations.

“The first step toward better blast-cleaning is understanding the many ways in which abrasive blasting directly affects not only the coating, but also the productivity and, ultimately, the profitability of the painting project.”

PHOTOS: P. 28-29, HELLO MY NAMES IS JAMES,I'M PHOTOGRAPHER. / GETTY IMAGES; FACING PAGE, COURTESY OF GMA GARNET

The size of the blasting job can determine which abrasive material will be the most efficient for use.

Personal protective equipment, such as a full face shield and supplied-air respirator, should be employed when using dust-generating, heavy-metal-containing abrasives for blasting.

This article considers the effect different abrasives can have on the various aspects of a maintenance painting project.

Productivity

Abrasive blasting directly impacts the speed and efficiency of any maintenance painting contract. The faster the surface gets cleaned, the sooner the facility can get back in action. However, it is not the case that all abrasives will prepare the surface to the required standard with the same level of efficiency.

The high consumption rates of many abrasives give rise to excessive levels of disruptive dust, which can spread around the worksite causing visibility problems for the operator and the possibility of inhalation by others. High abrasive consumption also requires more time for cleaning up and money for disposal. For example, imagine a scenario where a contractor is working to obtain a surface profile of 50–75 microns. Then, by switching to a more appropriate abrasive, a contractor could typically increase productivity by up to 50% and reduce costs by 15%, demonstrating the importance of informed abrasive selection.

PHOTO: COURTESY OF GMA GARNET

Safety

Originally, sand was used as a blasting abrasive. While the term "sandblasting" is still often used, sand contains free silica and is now classed as carcinogenic and widely banned for blasting purposes.

Coal and mineral slags are often used as general-purpose abrasives. However, because slags are by-products of burning coal, or of metal production, they inherently include metals. Studies have shown that waste slags can contain toxic heavy metals such as beryllium, arsenic, cadmium, chromium, lead and nickel. Beryllium and arsenic have also been classed as carcinogens and subject to recent OSHA regulations.

If these heavy metal-containing abrasives are selected for surface preparation, measures must be taken to contain the dust generated by the blasting operations (for example, erection of a containment structure), and personal protective equipment should be donned by the blaster in order to keep them protected from breathing in hazardous materials.

Commonly Used Abrasives

With an increasing emphasis on health and safety, tighter maintenance budgets and requirements for fixed-price bidding, maintenance managers are looking at the type of abrasive being used to meet the required specification. Industrial abrasives used primarily include:

- Waste slags;
- Metallic abrasives;
- Aluminum oxide;
- Garnet; and
- Crushed glass.

Waste slag is a brittle abrasive that tends to shatter upon impact. It produces the required finish based on particle size and often exceeds the specified surface profile. Slags require relatively high consumption to get the job done, especially when removing high-build coatings and on other hard to clean surfaces. Some slags may be prone to poor grading resulting in inconsistent particle sizing and erratic surface profiles, making it very difficult to accurately control

paint consumption. Although the trade status quo does accept surfaces blasted with slag, these abrasives will always produce a degree of embedment, which prevents the substrate from being truly clean.

Metallic abrasives from steel or iron are efficient, but are only financially feasible if they can be properly cleaned and recycled. It is particularly important to keep metallic abrasives dry and moisture free. Otherwise, the abrasive will rust and be rendered useless.

Stainless steel abrasive is particularly useful for blasting stainless steel, but the potential for galvanic corrosion means that it is not suitable for use on mild steel; likewise, steel grit or chilled iron is not suitable for blasting stainless steel. It is essential to ensure that the appropriate metallic abrasive is used when blasting different metal surfaces.

Aluminum oxide is not feasible for general maintenance due to its relatively high cost. It is recyclable and is often used within blast cabinets or other situations where it can be adequately contained and reclaimed.

Garnet is hard without being brittle and is therefore low dusting. It achieves the required finish through abrasive velocity rather than particle size, producing surface profiles of up to 90 microns. Quantities expended are typically less than half those of waste slag, for instance, while also cutting faster and producing a cleaner surface without embedment. Garnet can be recycled but is also cost effective as an expendable abrasive. Consistent grain sizing allows for an even-textured surface profile with few rogue peaks, giving a good degree of control over paint consumption. Garnet is non-metallic and is therefore suitable for blasting all surfaces, including stainless steel and aluminum. Its rate of cleaning can reduce the time spent on preparing a surface, and the lower quantities of spent abrasive for disposal, can make garnet a cost-effective option for those contractors needing to prepare a surface safely and efficiently.

Crushed glass is non-metallic and for the purpose of blast cleaning, is classified as silica-free. It may be utilized within dry blasting and slurry blasting operations. In addition to general industrial applications, crushed glass is commonly used for autobody restoration, stripping processes and polishing of metal surfaces.

Summary

Having considered the different attributes of the commonly used abrasives, the importance of selecting the right abrasive for the job at hand can be understood. Informed abrasive selection is an important factor when tendering for any painting project.

The knock-on effect of producing excessive surface profiles in the need for more paint to fill the voids and cover the rogue peaks can be easily seen, and that over-blasting will also slow down production rates. It is important, therefore, to select an abrasive with the smallest possible grain size capable of producing the specified surface profile.

Consider not only the type, but the size of the material when choosing a blasting abrasive to achieve the specified surface profile.

> Having considered the different attributes of the commonly used abrasives, the importance of selecting the right abrasive for the job at hand can be understood. Informed abrasive selection is an important factor when planning for any painting project.

PHOTO: COURTESY OF GMA GARNET

Table 1: Comparison of Common Industrial Blasting Abrasives

CHARACTERISTICS	GARNET	WASTE SLAG	METALLIC ABRASIVES	ALUMINUM OXIDE	CRUSHED GLASS
Productivity (ft^2/hr)	Medium/high	Medium	Medium/high	High	Low
Consumption (lb/ft^2)	2–4	5–8	0.5–1	2–4	8–12
Surface Quality	Minimal embedment	Medium to high level of embedment	Steel grit: High level of embedment Steel shot: No embedment	High level of embedment	Medium to high level of embedment
	Consistent profile				
	No rework required	Possible rework required			Possibility of chalky white residue
Dust	Low	High	Low on initial blast	Low	High
		Possibility of exceeding respirable hazardous limits	Possibilities of high dusting after recycling		
Heavy Metals and Hazards	Trace amounts (significantly below OSHA limits)	Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Nickel, Vanadium	Trace amounts (significantly below OSHA limits)	Trace amounts (significantly below OSHA limits)	Trace amounts (significantly below OSHA limits)
		Heavy metal content will vary depending on the type of slag abrasives, i.e. Copper, Coal, Nickel			
Environmental Contamination Risk	Low	High	Low	Low	Low
Disposal Cost	Low	Medium to high Possible extra costs for hazardous	Low	Low	High
Friability	Low	High	Low	Low	High
Toughness **Recovered abrasive (After One Blast)**	60–70%	12–62% (coal slag) 30–40% (copper slag) 38–43% (nickel slag)	Up to 100%	Up to 70–80%	As low as 10% and up to 25%
Hardness **(Knoop Scale)**	1700	550–800 (coal slag) 950 (copper slag) 500–700 (nickel slag)	1500–3000	1800	600
Specific Gravity **(g/cm^3) (Density Relative to Water)**	4.2	2.7 (coal slag) 3.4 (copper slag) 2.8 (nickel slag)	7.4	3.9	2.5
Bulk Density (lb/ft^3)	140	56–85 (coal slag) 90–112 (copper slag) 85–105 (nickel slag)	230–260	120	80
Recycling	Can be recycled 4 to 5 times	Cannot be recycled	Can be recycled 25 to 30 times	Can be recycled 4 to 5 times	Cannot be recycled
Supply	Secure supply	Supply restricted to existing waste piles (U.S.)	Plentiful supply	Supply disruptions	Plentiful supply
	Mined and produced domestically and internationally	Produced domestically and internationally	Produced domestically and internationally	Not produced domestically	Produced domestically and internationally

Disclaimer: The data and information contained on this sheet are general representative ratings and should be used as a guide only.

TABLE: COURTESY OF GMA GARNET

Health and safety considerations are rightly some of the most important to be taken into account whenever abrasive blasting is being undertaken. Some abrasives will cause excessive levels of nuisance dust causing poor visibility and potential for inhalation. The potential for some abrasives to produce hazardous toxic waste for disposal must also be considered.

The rate of abrasive consumption not only dictates the amount of waste produced but it also has implications with regard to the time required to remove the used abrasive from the workplace prior to disposal. This can be a particular problem when working in areas with difficult access.

The importance of the abrasive blasting part of a painting contract may well be overlooked when planning for minimum facility downtime. However, in today's market it's becoming more important than ever to identify any opportunity to enhance productivity, efficiency and safety. By taking a hard look at their blasting strategy and investigating the implications of abrasive selection, maintenance managers could find solutions hiding in plain sight. JPCL

PHOTO: COURTESY OF THE AUTHOR

ABOUT THE AUTHOR

John Halewood is a recently retired industrial coatings consultant with more than 50 years of experience in the industry. He spent 25 years as an industrial painter in the U.K., Oman and Abu Dhabi, before joining GMA Garnet Group, where he spent the past 30 years. Halewood helped found GMA's U.K. operation in 1992 and went on to introduce the product in Azerbaijan and Kazakhstan over the ensuing years. Most recently, he served as the company's Business Development Manager, covering the U.K., Caspian region and Middle East.

POWERING UP

PAINTING STACKS ON THE FAST TRACK

BY PAUL ATZEMIS AND TONY PERSUTTI,
CARBOLINE COMPANY

For millions of Americans to be able to turn on their stoves or televisions, keep a fan running to cool down during the hot summer days or charge their cell phones without a second thought, U.S. energy suppliers must consistently find ways to increase their production capabilities and efficiency.

Harnessing these forms of energy and bringing them onto the main stage for consumers requires robust processing facilities to make it all possible, which can present some of the harshest and most demanding service conditions in any industry. From solar and hydroelectric power to nuclear energy, to natural gas and oil, to wind power, there is a massive number of critical power production facilities nationwide that require not only corrosion protection measures to be used during initial construction, but also constant monitoring and maintenance in order to remain operational and reliable.

Those readers in the industrial coatings field know what that means – steel and other substrates need quality, protective coatings that can keep the structures intact and in operation over the lifetime of the plant.

This brings us to one liquefied natural gas (LNG) facility in Medway, Massachusetts, owned by a large U.S. energy provider that serves over 20 million homes with power, where a silicon acrylic protective coating was applied on the scalding exterior surface of regasification stacks in May of 2019 – and reportedly maintains its fresh appearance today.

LNG fuel is not a new technology, having been commercially available in the U.S. since the mid-20th century, but developments in production processes have led to it being regarded today as one of the cleaner fossil fuels available. This "mainly-methane" fuel undergoes a refrigerating process and is cooled to -256 degrees F, where it liquefies and is then ready for transport. Once the LNG arrives at its destination, it needs to be returned to its gaseous state, which is where the regasification stacks come into play.

The external surfaces of these stacks need to be protected with a coating that not only has weathering properties, including ultraviolet radiation resistance, but can also resist the high surface temperatures present. These stacks maintain continuous elevated surface temperatures, which pose a problem for most of the industry's standard generic atmospheric coatings. A scenario such as this is where silicon-hybrid coatings can prove their capabilities.

In this example, the Medway stacks were newly erected, with the steel having a zinc shop primer previously installed. As the delivery of the stacks from overseas to the site was behind schedule, this became a fast-track coating project. As soon as the stacks were installed, the painting portion began. Solvent Cleaning (SSPC-SP 1) was utilized in conjunction with High Pressure Water Cleaning (SSPC-SP 12/ NACE No. 5; HP WC) at 5,000 psi, as well as Hand and Power Tool Cleaning (SSPC-SP 2 and SSPC-SP 3) in order to ensure the surface was free from dirt, dust, oils, debris and other contaminants, and suitable for the subsequent protective coating. Welds and repair areas were spot-primed with organic zinc, and then

"The external surfaces of these stacks need to have a coating that not only has weathering properties ... but can also resist the high surface temperatures present. These stacks maintain continuous elevated surface temperatures, which pose a problem for most of the industry's standard generic atmospheric coatings. A scenario such as this is where silicon-hybrid coatings can prove their capabilities."

PHOTO, FACING PAGE: COURTESY OF CARBOLINE COMPANY

PHOTO: COURTESY OF CARBOLINE COMPANY

Facing page: Shop-primed with zinc in advance, the 185-foot-tall stack structures were delivered from overseas and erected prior to surface preparation, spot-priming and coating application.

Cranes and lifts were utilized throughout the project to apply coatings at heights exceeding 185 feet.

Right: Nuts and bolts and tight angles required brush and roller application to ensure full coverage.

CONT. FROM P. 39

the entire surface was finished with a full coat of the silicon coating at 1.5–2 mils.

Typically, LNG stacks can reach heights of 150 feet and more, and the stacks involved in this project exceeded that at 185 feet in height. Hence, the possibility of getting overspray on adjacent structures even a quarter of a mile away was of major concern. To mitigate this possibility, the applicators used high-volume, low-pressure (HVLP) spray guns, and brushes and rollers on small areas such as nuts and bolts, and tight, back-to-back angles.

As straightforward as this may sound, having a boom lift at those

PHOTO: COURTESY OF CARBOLINE COMPANY

heights can be a difficult operation – a slight breeze on the ground can feel like a gale wind up that high, sending the basket in the man lift into an oscillating cycle that would test the mettle of even the most skilled applicators as they try to spray an even coat of paint onto a vertical surface. The boom lift could not be driven to the backside of the stacks, so a crane had to be used to lift it into position to fully coat the structure.

The project was also conducted in the springtime in Massachusetts, so dew, fluctuating weather conditions and high humidity, were significant factors in getting the project finished properly and on time. As the painters (and, therefore, the paint) are often the last construction entity to enter and perform their duties on a newly built structure, and there are often at least three or four different fabricators on a site at any given time whenever the painters arrive, communication is critical so that no one is in someone else's way – otherwise, operations can get messy very quickly.

Given the atmospheric conditions, logistical challenges and high-heat service, finding a coating that can operate under those conditions and maintain its application flexibility, be applied in the field, and that works well, is not easy. Silicon coatings and inert polymeric matrixes can be suitable for high heat service but need to be fully heat-cured before being used in atmospheric service. That's why silicon acrylic can be used as a potential workhorse in these types of services, where the service temperature may not be as high as to require silicon or inorganic coating, but above the range of normal epoxy, acrylic and urethane thresholds. The hybrid technology allows them to be applied in the field with weathering properties and fast dry-to-touch and fast recoat times.

After two years of continuous scalding temperatures and Mother Nature's wear and tear, the stacks today look like they were painted yesterday – the results of diligent application and the selection of the right coating for the job. JPCL

> "Silicon coatings and inert polymeric matrixes can be suitable for high heat service but need to be fully heat-cured before being used in atmospheric service."

The coating on the finished stacks is designed to protect the steel at service temperatures of up to 500 F.

ABOUT THE AUTHORS

Paul Atzemis is the Director of Technical Services with Carboline Company. He has more than 25 years of coatings industry experience, holds a B.S. degree in chemistry from John Carroll University and is a NACE-certified Level 3 Coating Inspector. He is also co-creator and co-host of the *Carboline Tech Service Podcast*.

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PHOTOS: COURTESY OF CARBOLINE COMPANY

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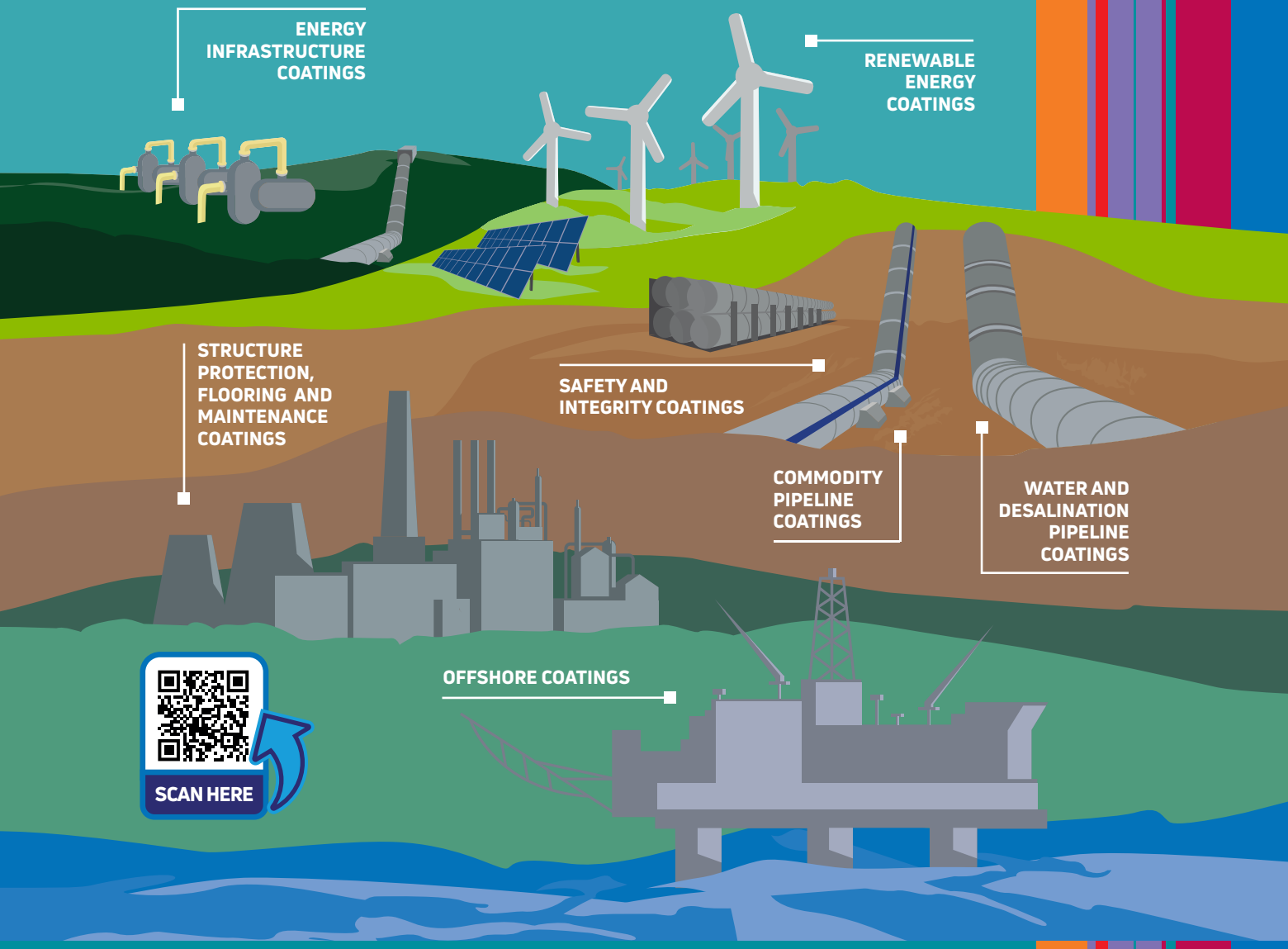

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NEWS FROM THE TRACKER

Contractors Sought to Rehab Two Reservoirs

LA, IL Bridge Contracts Awarded

BY KATELYN ANTOLIK AND KONSTANTINE FEKOS, PAINT BIDTRACKER

Above, **John Paul Steiger Reservoir;**
right, **Heinie Hills Reservoir**

PROJECT PREVIEW

The City of Oceanside, California, is seeking engineers for a request for proposals regarding the Heinie Hills and John Paul Steiger water storage reservoirs. The work will include abrasive blast-cleaning of submerged metal surfaces in contact with potable water to Near White standards (SSPC-SP 10/NACE No. 2) and coating with a moisture-cured zinc-rich primer and two-component 100% solids epoxy lining. Exposed metal surfaces will require surface preparation to Commercial standards (SSPC-SP 6/NACE No. 3) and coating with a two-component epoxy primer and two-component acrylic polyurethane finish coating. Nonferrous metal surfaces will require Solvent Cleaning (SSPC-SP 1) and application of three or more coats of an epoxy mastic system. Exterior concrete will require two coats of hydrophobic acrylic coating application, or will receive surface preparation to Commercial or Bare Metal standards (SSPC-SP 6/NACE No. 3, SSPC-SP 11) and coating with a high-performance protective primer and two coats of acrylic polymer top coating. The owner-approved manufacturers are Sherwin-Williams, Tnemec, Dunn-Edwards, PPG and ICI Devoe, or an approved equivalent. Proposals are due Aug. 2.

PHOTOS: FACING PAGE AND BELOW, COURTESY OF CITY OF OCEANSIDE, CA; RIGHT, TYPHOONSKI / GETTY IMAGES

PROJECT AWARDS

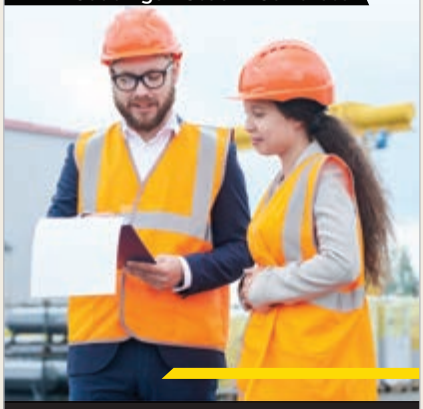
The Louisiana Department of Transportation and Development has awarded a contract in the amount of $4,750,162 to Seminole Equipment, Inc. (Tarpon Springs, Florida) for repairs to the Calcasieu River Bridge between the cities of Lake Charles and Westlake, Louisiana. The work includes cleaning and painting grouped bridge spans A and E, B and D, and Span C. The steel will be abrasive blast-cleaned to Near White (SSPC-SP 10/NACE No. 2) or Bare Metal standards (SSPC-SP 11) and will be coated with an organic zinc-rich system. Seminole Equipment will also oversee overcoating of existing coating systems and epoxy-urethane overlay application. Certifications for SSPC-QP 1, QP 2 and QP 3 were required for this project. The owner-approved coating manufacturers are Sherwin-Williams, Carboline, Wasser, International Paint and PPG.

The Illinois Department of Transportation has awarded a $1,293,300 contract to Capital Industrial Coatings, LLC (Hammond, Indiana) to paint the bridge at the Poplar Street Complex on I-55 over Trendly Avenue. Capital Industrial Coatings will oversee cleaning and painting steel bridge members on the existing structure; the steel will be abrasive blast-cleaned to a Near White (SSPC-SP 10/NACE No. 2) finish and coated with Illinois Department of Transportation System 1, which includes an organic zinc-rich primer, epoxy intermediate and urethane finish coating. The project requires containment and disposal of lead painting residues. The owner-approved coating manufacturers include Sherwin-Williams and Carboline.

CONSULTING

EQUIPMENT

HUMAN RESOURCES



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EQUIPMENT

TEST INSTRUMENTS

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HELP WANTED

Blast & Coating Technician

The Blast and Coating Technician is responsible for preparation of surface to NACE Standards and applying various types of industrial coatings and paints to meet specifications. Qualifications required include a high school diploma or equivalent, a current hazardous paint card, and SSPC or equivalent coating's certification. Apply to CCI Industrial Services, LLC in Prudhoe Bay, AK at kkeys@kakivik.com.

INDEX TO ADVERTISERS

CONT. FROM P. 4

TOP PROJECT (1 Award)

The Top Project category will recognize the players involved in a notable industrial protective coatings project completed during the year. This project may employ some of the nominated Top Products and Innovations or involve some of the Top People chosen by the industry.

Projects can be submitted from the Bridge and Highway, Water and Wastewater, Marine and Energy (including oil and gas production) sectors. Project nominations should include details about the project, the companies involved and high-resolution project photos.

To read the complete award descriptions and submit your nominations, visit paintsquare.com/prestige.

PAINT BY NUMBERS

72%

The percentage of participants who correctly answered this issue's PaintSquare Quiz. P8

197,000 sf

The approximate total area of steel surfaces coated during a multi-year rehabilitation project at the Cowans Ford Hydroelectric Station. P20

20+ mils

The coating thickness that necessitates the use of high-voltage holiday detectors. P10

$4.75 M

The amount recently awarded in a contract to repaint the Calcasieu River Bridge in Louisiana. P44

6

The number of industrial abrasive types described and discussed in the feature article on abrasive blast-cleaning for surface preparation. P28

185 ft

The approximate height of recently repainted regasification stacks at a Massachusetts power plant. P38

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