

Coming Soon: 2024 JPCL Media Pack

While most of you are likely trying to grasp those final, fleeting moments of the summer season, the team here at JPCL has been hard at work putting the pieces of the next year's editorial calendar together.

In the coming weeks, JPCL and its publisher, Technology Publishing Company, will release its 2024 Media Pack, which will outline the editorial topic offerings slated for each month of the upcoming year. Whether you're an author looking to contribute a technical paper or project case history, an advertiser looking to highlight your company's offerings, or just a curious reader wondering what kind of content might be coming down the pike, the editorial calendar can help you plan accordingly.

Our planning is an ongoing process that's never truly complete, though, so we not only welcome, but humbly request new ideas and feedback from our audience. What kinds of articles would you like to see more of in the Journal? What are some new and emerging industry technologies and trends that we should be covering in coming issues? Which industry power players are worthy of being profiled in JPCL's pages?

Now and in the coming months, please do not hesitate to reach out to us and let us know how JPCL can better serve you, the reader. And don't forget to enjoy these last days of fun in the sun this summer!



PHOTO: ANATOLII KOVALOV / GETTY IMAGES

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JPCL
JOURNAL OF PROTECTIVE COATINGS & LININGS

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LEAD FEATURE

33 **2023 Annual Directory of Industrial Painting Contractors**

The print version of the Directory includes listings for painting contractor companies located primarily in North America, but also around the world. Expanded details for each company—including contact information, web addresses, breadth of industry experience and specialty services—are available in the fully searchable online Directory at paintsquare.com/bg.

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FEATURES

16 The Future of Water Tank Interiors: The Recoating of the Norma Marshall Reservoir

BY PAUL TRAUTMANN AND JOSH SKINNER, SHERWIN-WILLIAMS PROTECTIVE AND MARINE

The authors outline how a 100%-solids epoxy lining system was chosen to replace existing polyurethane- and epoxy-based linings on a 4.8-million-gallon ground storage tank, and how successful application brought the storage tank into compliance with the new NSF/ANSI/CAN 600 standard more than a year ahead of schedule.

24 Polymer Coatings for Restoring Wastewater Treatment Plant Structures

BY HUNTER SANSONE, A&W COATINGS

This article recaps a project that involved rehabilitation of the headworks grit processing system and influent channel at the South Wastewater Treatment Plant in Brownsville, Texas. The author explains how properly selected and applied epoxy coatings were used to successfully complete the project.

DEPARTMENTS

1 ANNOUNCEMENT

4 COVERAGE

- PPG, Sherwin, AkzoNobel Q2 Numbers
- RPM Q4, Full-Year Finances
- Paint Poll: Lead-Based Bridge Coatings
- PaintSquare Comments: U.S. Infrastructure Action

10 COATINGS 101

Invisible Contaminants: Detection and Removal

44 BID BITS

- Awards: WA Bridge, SC Pump Station Jobs
- PA Sewage Project Bidding

48 PAINT BY NUMBERS

ALSO IN THIS ISSUE

46 PRODUCT AND SERVICE DIRECTORY

46 CLASSIFIEDS

47 INDEX TO ADVERTISERS



ON THE COVER

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PPG, Sherwin, AkzoNobel Report Q2 Sales

Last month, global coatings companies PPG, Sherwin-Williams and AkzoNobel released their 2023 second-quarter financial results, with each company reporting sales increases for the quarter and positive mid-year numbers that project further growth for the second half of the year.

PPG

On July 20, PPG released its second-quarter earnings report, announcing $4.9 billion in net sales – approximately 4% higher than this time last year. Net income for the second quarter came in at $490 million with adjusted net income landing at $534 million. PPG also noted that, compared to Q2 of 2022, selling prices increased by 6%, but sales volumes were down by 3%.

The company points to their diverse portfolio, which reportedly



> "We anticipate that the global macroeconomic environment will remain generally consistent with the second quarter, including continued tepid global industrial production … We expect our diverse portfolio mix to provide us with continued resiliency."
>
> — *Tim Knavish*

helped deliver record sales and earnings in the second quarter. While the overall global industrial demand was "lackluster," several of PPG's technology-advanced businesses and brands reportedly once again delivered strong growth. In particular, the company points to the aerospace, automotive original equipment manufacturer (OEM), automotive refinish coatings and the PPG Comex businesses.

"We made excellent progress in restoring operating margins toward our prior historical profile, as we sharply improved year-over-year segment margins by 330 basis points. Additionally, we demonstrated one of our long-standing legacies of strong cash generation with record operating cash flow for the first half of the year, and we are targeting further working capital improvements in the second half of the year, specifically in raw materials inventory," wrote Tim Knavish, PPG President and CEO.

In the company's Performance Coatings segment, PPG reported $3.04 billion in net sales, compared to $2.93 billion in the same period last year in a 4% increase. Segment income came in at $537 million, compared to $446 million in 2022. Within the Performance Coatings segment, the company noted that net sales increased through higher selling prices in all businesses and favorable foreign currency translation that "more than offset" lower sales volumes.

Demand for PPG's aerospace products reportedly remained robust across all product categories as the business delivered record sales, aided by low-teen percentage sales volume growth year-over-year. PPG Comex also delivered another record quarter, continuing to benefit from a growing Mexican economy and its "well-established" brand.

Organic sales in the protective and marine coatings business improved by a high single-digit percentage, PPG reports, with



Tim Knavish

contributions from higher selling prices and sales volumes compared to the second quarter of 2022. The Industrial Coatings segment's net sales also increased by about 4% coming in at $1.83 billion compared to $1.76 billion year-over-year. Segment income landed at $250 million, 60% higher compared to $156 million this time last year. This was primarily driven by higher selling prices across all businesses, partially offset by lower sales volumes, the company says.

"Looking ahead, we anticipate that the global macroeconomic environment will remain generally consistent with the second quarter, including continued tepid global industrial production, along with some incremental slowing in U.S. architectural residential repaint due to significantly lower existing home sales," said Knavish.

"Given the strength and momentum we have experienced year to date in several of our businesses, such as aerospace coatings and automotive OEM coatings, we expect our diverse portfolio mix to provide us with continued resiliency."

SHERWIN-WILLIAMS

On July 25, The Sherwin-Williams Company released its 2023 second-

PHOTO: COURTESY OF PPG

quarter financial results, reporting a 6.3% increase in consolidated net sales to a record $6.24 billion for the quarter compared to the year prior.

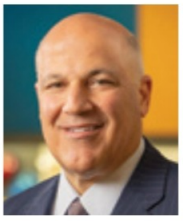
According to the release, diluted net income per share also increased 38.9% to $3.07 per share in the quarter compared to $2.21 per share in the second quarter 2022. Adjusted diluted net income per share increased 36.5% to $3.29 per share in the quarter compared to $2.41 per share in the second quarter 2022.

"Our team delivered very strong results in the second quarter, as sales exceeded expectations in all three segments," said Chairman and Chief Executive Officer, John G. Morikis.

Sherwin reported that its Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) increased 31.4% to $1.28 billion in the quarter and was 20.6% of net sales. Consolidated net sales increased primarily due to selling price increases, which impacted sales by a mid-single digit percentage and mid-single digit volume growth due to higher architectural sales volume in the Paint Stores Group. This growth was offset by lower volume in industrial businesses, the company says. Acquisitions increased consolidated net sales by 1.4%. Income before income taxes increased primarily due to selling price increases in all segments and higher sales volume in the Paint Stores Group, as well as moderating raw material costs. These factors were partially offset by lower sales volume in the Performance Coatings Group, increased investments in long-term growth initiatives and higher employee-related costs.

During the quarter, Sherwin said that it completed the divestiture of a non-core domestic aerosol business and announced it had signed a definitive agreement to divest the China architectural business within the Consumer Brands Group, as part of a previously announced restructuring plan to simplify the company's operating model and reduce costs.

Net sales in the company's Paint Stores Group increased primarily due to mid-single digit volume growth across most end markets, as well as selling price increases, which impacted sales by a mid-single digit percentage, the company says. According to Sherwin, PSG segment profit increased due primarily to higher paint sales volume, selling price increases and moderating raw material costs, partially offset by continued investments in long-term growth strategies and higher employee-related costs. The company also reported that net sales from stores in U.S. and Canada open more than 12 calendar months increased 9.5% in the quarter.



John G. Morikis

> "Even in challenging environments like the current one, we remain confident in our strategy, and we will continue to invest in stores, sales and technical reps, innovation, digital and other growth initiatives ..."
>
> — John G. Morikis

In the Consumer Brands Group, Sherwin reported net sales increases which it says were primarily due to selling price increases, which impacted sales by a mid-single digit percentage. Higher sales volume growth in Latin America and Europe was reportedly offset by lower sales volume in North America and Asia. The CBG segment profit increased primarily due to selling price increases and moderating raw material costs and good cost control, partially offset by inflation in wages and other employee-related costs. Acquisition-related amortization expense reduced segment profit as a percent of net external sales by 190 basis points in the second quarter of 2023, compared to 210 basis points in the second quarter of 2022. Restructuring expense and impairment charges reduced segment profit as a percent of net external sales by 210 basis points in the second quarter of 2023.

As for the Performance Coatings Group, Sherwin says that net sales increased primarily due to selling price increases in all end markets, which increased net sales by a mid-single digit percentage, and incremental sales from acquisitions, largely offset by lower sales volumes in most regions. Acquisitions increased PCG's net sales by 4.5% in the quarter, and PCG segment profit increased primarily as a result of selling price increases, moderating raw material costs and effective cost control, partially offset by higher employee-related costs, the company says. Acquisition-related amortization expense reduced segment profit

PHOTO: COURTESY OF THE SHERWIN-WILLIAMS COMPANY

as a percent of net external sales by 280 basis points in both the second quarter of 2023 and 2022.

Sherwin says that it generated $1.29 billion in net operating cash during the first six months of 2023, an increase of 102% compared to the same period in 2022, primarily as a result of higher profit. According to the company, this strong cash generation allowed Sherwin to return $848.7 million to its shareholders in the form of dividends and repurchases of 2.3 million shares of its common stock during the first six months of 2023. As of June 30, 2023, Sherwin says that it had remaining authorization to purchase 42.9 million shares of its common stock through open market purchases.

Morikis also noted that in the Paint Stores Group, the company expects demand to remain solid in commercial, property maintenance, protective and marine and residential repaint, while new residential demand is expected to remain soft due to continued slowing of completions, though share gains should enable us to outperform the market. In the Consumer Brands Group, Morikis said that though North America DIY demand remains soft, demand in Europe has stabilized and markets in Latin America have shown mixed results. In the Performance Coatings Group, however, North America demand has slowed, while Europe and Asia remain "choppy," Morikis says.

"Even in challenging environments like the current one, we remain confident in our strategy, and we will continue to invest in stores, sales and technical reps, innovation, digital and other growth initiatives to press our advantages now as well as when markets recover more fully. We expect to continue delivering above market growth and returns," said Morikis.

> "Our Q2 results are in line with expectations despite volatile markets ... Our results provide a solid foundation and allow us to increase our full-year guidance."
>
> — *Gregory Poux-Guillaume*

AKZONOBEL

AkzoNobel also released its 2023 second-quarter financial results on July 25, announcing increases in operating income despite a slight increase in revenue compared to Q2 of last year.

According to AkzoNobel's press release, revenue was down 4% down on unfavorable exchange rates, but 3% up in constant currencies for the quarter. Additionally, the company reported that pricing was up 5%, while volumes were 1% lower, with trends reportedly improving after a weak start to the quarter.

Acquisitions added 1%, mainly related to the acquisition of Grupo Orbis in April of 2022, while the company says the impact of hyperinflation accounting, which reduced revenue by 2%, was mostly due to the devaluation of the Turkish Lira.

Overall, AkzoNobel reported that operating income was 36% higher, at €279 million (from 2022's €205 million), mainly due to higher pricing. Adjusted operating income was 25% higher, at €311 million (from 2022's €249 million), while ROS improved to 11.3% (compared to 2022's 8.7%). Net cash from operating activities also posted a positive figure of €305 million (from 2022's negative €52 million), the company said.

"Our Q2 results are in line with expectations despite volatile markets and complete a solid first half of 2023," commented AkzoNobel's CEO, Gregory Poux-Guillaume.

In the Performance Coatings segment, revenue was 5% lower and 2% higher in constant currencies mainly due to higher pricing. Volumes were 1% lower, with growth in Marine and Protective more than offset by continued soft demand in Industrial Coatings, the company says.

In the Decorative Paints segment, AkzoNobel reported that revenue was 3% lower and 5% higher in constant currencies, mainly due to higher pricing. Lower volumes in Europe and Latin America were partly offset by higher volumes in Asia, the company says. Acquisitions added 2%, again mainly related to the Grupo Orbis acquisition. Revenue decreased by 1%, largely due to the impacts of hyperinflation accounting in Turkey.



Gregory Poux-Guillaume

For the first half of 2023, AkzoNobel reported that revenue was flat on unfavorable exchange rates, while up 5% in constant currencies. Pricing was also up 6%, with volumes 2% lower, for

PHOTO: COURTESY OF AKZONOBEL

Q1 and Q2. Operating income was 5% higher, at €461 million (from 2022's €437 million), with an adjusted operating income 10% higher, at €529 million (from 2022's €479 million). According to the company, ROS also improved to 9.8% (compared to 2022's 8.9%) for the half-year, while net cash from operating activities was positive €255 million (from 2022's negative €154 million).

For the rest of the year, AkzoNobel says that it expects the ongoing macroeconomic uncertainties to continue and weigh on organic volume growth. The company says it will focus on margin management, cost reduction, working capital normalization and de-leveraging. Cost reduction programs are expected to partly mitigate higher than expected inflationary pressure on operating expenses for 2023.

AkzoNobel also expects declining raw material costs to have a favorable impact on profitability. Based on current market conditions, the company targets to deliver €1.40 to €1.55 billion adjusted EBITDA. The company also says that it aims to lower its leverage ratio to less than 3.4 times net debt/EBITDA, including the impact of the Kansai Paint Africa acquisition, by the end of 2023 and return to around two times post-2023.

"Our results provide a solid foundation and allow us to increase our full-year guidance," said Poux-Guillaume.

"We're on the right path – in markets that will continue to be impacted by macroeconomic uncertainties."

RPM Releases Q4, 2023 Full-Year Finances

RPM International Inc., parent company of specialty coatings and sealants brands including Carboline and Tremco, released its 2023 fourth-quarter and year-end financial report on July 26, reporting Q4 net sales of $2.02 billion—an increase of 1.6% over the past year.

"RPM generated a sixth consecutive quarter of record sales and adjusted EBIT. While prioritizing cash flow over profitability, we were still able to achieve adjusted EBIT growth primarily through our MAP 2025 initiatives. Our progress on inventory normalization initiatives drove a fourth-quarter record $314 million of cash flow from operations and allowed us to reduce debt by nearly $140 million" said Frank C. Sullivan, RPM Chairman and CEO.

"These impressive results were due to the hard work, collaboration and agility of our associates, which allowed us to capture growth opportunities and leverage MAP 2025 initiatives to operate more efficiently."

RPM's Performance Coatings Group's net sales were a record $358.3 million during the fourth quarter, which was an increase of 8.8% compared to the $329.3 million reported a year ago. Organic sales increased 10.4% and acquisitions increased by 0.9%, partially offset by foreign currency translation headwinds of 2.5%. Adjusted EBIT growth was achieved on top of strong results in the prior-year period when adjusted EBIT grew 37.3%.



Frank C. Sullivan

"PCG generated record fourth-quarter sales driven by volume growth in businesses that serve infrastructure and reshoring capital projects with engineered solutions, including fiberglass grating, protective coatings and flooring systems. Increased pricing and stronger demand from energy-related capital projects also contributed to growth," the report stated.

In the Construction Products Group, net sales were a record $748.047 million during the fourth quarter, which was an increase of 0.3% compared to the 2022 fourth-quarter net sales of $745.9 million. The report went on to note that the revenue growth was driven by price increases and strength in concrete admixtures and repair products, which experienced increased demand from capital spending on infrastructure and restoration-related projects. Sales reportedly included 0.8% organic growth from acquisitions, offset partially by foreign currency translation "headwinds" of 1.5%.

For the company's Specialty Products Group, net sales were at $193.4 million during the fourth quarter, which was a decrease of 14.3% compared to the $225.8 million reported last year. Organic sales decreased by 12% and acquisitions experienced a 1.8% reduction from divestiture net of acquisitions and foreign currency headwinds of 0.5%. RPM reports that SPG was disproportionately impacted by the company's inventory normalization initiatives as the segment has the highest concentration of intercompany sales. RPM reports that SPG took actions to reduce its cost structure during the fourth quarter of fiscal 2023.

Finally, the Consumer Group reported net sales of $716.3 million during the fourth quarter, an increase of 4.9% compared to net sales of $682.8 million reported in the fourth quarter of fiscal 2022. Organic sales were up 5.6% and acquisitions increased by 0.3%, partially offset by foreign currency headwinds of 1%.

PHOTO: COURTESY OF RPM INTERNATIONAL INC.



POLL

At the end of June, the Massachusetts Department of Transportation held a public meeting to hear residents' concerns and give updates about the next steps being taken after lead paint chips reportedly began falling off of the Tobin Bridge into nearby yards in Chelsea, Massachusetts.

During the meeting, MassDOT provided details and received comments about the ongoing cleanup efforts and planned structural cleaning and painting, as well as steel and concrete repairs on the cantilever truss bridge between Boston and Chelsea.

After the incident of lead paint chips falling from the Tobin Bridge into nearby yards, the Massachusetts Department of Transportation said that its contractor would begin vacuuming the paint chips and safely disposing of them, starting in parking lots and then moving to yards, sidewalks and other areas under the bridge. Do you believe enough is being done to address residents' concerns about the lead paint?

50% **YES**

17% **NO**

33% **OTHER**

WILLIAM CORNELIUS:

"After five months since the issue came up, a lot of these chips and dust that didn't land on sealed surfaces will have worked the way into the soil of yards and other areas. Vacuuming will not help these areas at all."

RIC BEARD:

"It's never enough. Every industry has become overwhelmingly reactive instead proactive in their maintenance approach. It's one of the reasons the repair and maintenance budgets are so unreasonably high. Technology is prevalent for mitigating at a reasonable expense versus the 'wait and see' approach."

IN RESPONSE TO:

"Senator Requests Cape Cod Bridge Information"

(*PaintSquare Daily News*, Aug. 7)

Earlier this month, U.S. Senator Elizabeth Warren (D-MA) announced that she has sent letters to Cape Cod community stakeholders seeking their input about the impacts of the "crumbling" Bourne and Sagamore Bridges and the benefits of replacing them. Senator Warren is reportedly seeking this information as a part of her effort to ensure the federal government lives up to its commitments to replace the bridges.

"The Bourne and the Sagamore Bridges, which are owned by the federal government, were built in 1933, and fundamentally 'changed the relationship between the Cape and the rest of Massachusetts.'... They are vital assets for the Cape Cod economy and surrounding communities, and also serve as essential routes for general transportation, tourism, and evacuations in case of an emergency," wrote Senator Warren.

"However, the current bridges are nearly 90 years old, functionally obsolete, and require increasingly costly and disruptive maintenance. The bridges' structural deficiencies present an ongoing risk to the accessibility and economic stability of the Cape Cod region."

MIKE BEITZEL:

A cost study should be done rather than take the easy route to replace the structures ... We need to start maintaining our structures like our forefathers did, not just build and abandon, especially our large and important structures. All large bridges should have a resident and funded maintenance force ... My advice to the country is to invest and take care of your strategic infrastructure assets and not become a throwaway society."



PHOTOS: (FROM TOP) PATRICK PERRY / GETTY IMAGES; SANGHWAN KIM / GETTY IMAGES

INVISIBLE CONTAMINA

Detection and Removal

Since many coating failures can be traced back to a contaminant on the substrate or previously applied protective coating, the importance of having the surface clean cannot be overestimated. Contaminants on the surface can cause the protective coating to fail in many ways. When the coating fails, the environment that the protective coating is designed to keep away from the surface attacks the substrate and starts the corrosion process. Therefore, the detection and removal of contaminants on surfaces is crucial to the integrity and longevity of the applied protective coating.

Merriam-Webster's Dictionary defines a contaminant as "something that contaminates." Contamination implies the intrusion of or contact with dirt or other substances from an outside source, making the contaminated substance unfit for use.

This article reviews several basic procedures for detecting and removing invisible contaminants on surfaces prior to coating. The contaminants included are common to the application of most protective coating systems and are found on most coating projects. The detection and removal of three contaminants – soluble salts, hydrocarbons and dust – are discussed.

Soluble Salts

Soluble salts are commonly found on surfaces when the project is located in an area where chemical plants or refineries are concentrated, such as the Gulf Coast of the U.S. These types of plants produce byproducts that are emitted into the air by venting. They are present in the offshore environment on offshore platforms, pipelines, and other fixtures that have been laid in the waters surrounding the continental U.S. and inland as well. They are also found on bridges where road salts are used. There have also been cases of salt contamination from dirty abrasive.

When soluble salts are deposited on a surface after blasting for whatever reason, they can cause a reaction in the protective coating, causing the system to blister. Once a blister forms in the protective coating, it can allow the substrate to be attacked by the environment that it was designed to act as a barrier against. Then, the destructive action of corrosion will begin.

In the field, salt contamination is suspected if the steel flash rusts quicker than normal after blasting. A black rust starts

EDITOR'S NOTE: This article was originally written by James B. Swain of WISco, Inc., and published in the September 1991 issue of JPCL. It was part of JPCL's original Applicator Training Bulletin series, developed by the Coating Society of the Houston Area and edited by Lloyd Smith of Corrosion Control Consultants and Labs. It was been reviewed and updated for this issue by JPCL staff.



PHOTO: YAMTONO_SARDI / GETTY IMAGES

forming in the pits of the steel and spreads over the contaminated area. When this occurs, whether in a few minutes to hours, salt contamination is the likely cause.

TESTING FOR CHLORIDE CONTAMINATION

Industry standards detail the testing processes for detection of soluble salts on a surface. SSPC Guide 15, Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates, outlines the most effective and commonly used testing methods, including both conductive and ion-specific tests. These methods include surface swabbing, adhesive latex patch, adhesive latex sleeve and others.

Two other relevant standards for salt testing are SSPC Guide 24, Soluble Salt Testing Frequency and Locations on New Steel Surfaces, and NACE SP-0716-2016, Soluble Salt Testing Frequency and Locations on Previously Coated Surfaces, both of which offer guidance on when and where to test for soluble salts. However, none of these industry standards specify an acceptable level of chlorides that are allowed to remain on a surface prior to coating application. Therefore, it is up to the facility owner to determine how much leftover salt is acceptable.

For water-soluble contaminants such as salt, methods such as pressurized water washing, steam cleaning, detergent

FIG. 1: Corrosion and coating failure can result from invisible contaminants being left on a surface before the application of coatings.



FIG. 2: **Bridge structures can be susceptible to salt contamination from road salts used in cold climates to marine exposure in warmer, coastal settings.**

cleaning or emulsion cleaning are most effective. The industry has also seen the development of proprietary salt removal products for use prior to coating application, which are commercially available.

Hydrocarbons

Surfaces can be contaminated with oil and grease that are not visible and thus not noticed when the surface is examined in accordance with SSPC-SP 5, 6, 7, or 10. The two most important sources of hydrocarbons found on coating operations are the oils on the hands of the applicator, helper, or inspector on the project site and the oils used to lubricate the compressor or power tools.

Oils from workers' hands can contaminate the substrate any time workers touch the surface with their bare hands. Lubricating oils can be transmitted to the surface through airlines during blasting operations, power tool cleaning or blowdown. Another source of hydrocarbon contamination is diesel exhaust, deposited from compressors or vehicles driving under or near the structure. If the primed surface is allowed to sit for a length of time before the next coat is applied, diesel exhaust can be left on the surface and cause delamination between coating layers.

If any of these oils remain and the protective coating is applied, a number of defects can affect the coating and once again allow the environment to attack the substrate that the coating was designed to protect.

When soluble salts are deposited on a surface after blasting for whatever reason, they can cause a reaction in the protective coating, causing the system to blister.

DETECTING AND REMOVING NON-VISIBLE HYDROCARBONS

A simple test to detect the presence of non-visible hydrocarbons on the surface prior to applying the protective coating is to place a drop of water on a horizontal piece. If the drop remains in a ball as it would on a newly waxed car, there is oil on the surface.

Another method to use is ultraviolet light or black light. The ultraviolet light will not allow the proper detection of hydrocarbons if the substrate is exposed to daylight or artificial lighting. Therefore, a hood made of black cloth has to be used with the black light to shield the surface if it is being inspected during daylight, or the surface could be inspected at night. However, to inspect at night would most likely not allow the application of the coating after acceptance of the surface. Therefore, the black hood is the best method to properly inspect the surface prior to coating.

The presence of hydrocarbons will be indicated by bright yellow or lime green lights on the surface. If a fingerprint is present, ultraviolet light will outline the print. If a small spot of oil was deposited by contaminated air, the area will be indicated by a bright light on the surface.

The ultraviolet light will also give false indications the same way that it detects hydrocarbons. For example, under a black light, lint from a rag or clothing will produce non-relevant indications that resemble the black light's indications of hydrocarbons.

It is important to be very sure that indications of hydrocarbons are valid before actually rejecting the surface for coating. Also be aware that some synthetic oils will not show up under a black light.

To remove the hydrocarbons, apply a solvent wash on the areas that were judged to have hydrocarbons present. Follow the latest edition of SSPC-SP 1, Solvent Cleaning. It is most important that the solvent be compatible with the designed coating system. Therefore, verify the solvent to be used with the proper authority, such as the coating manufacturer, and then document all activities and conversations in the daily reports.

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FIG. 3: **Solvent cleaning specifications are invoked on nearly every coating project.**

Use the ultraviolet light to re-examine the areas that were rejected to be assured that the surface is clean.

Dust

Dust is found on every surface during a coating operation. The reason is simple. During an abrasive blasting operation, the abrasive is forced out of the nozzle at the designed pressure, and when it impacts the surface, it breaks up into many pieces. Some pieces are large enough to be seen on the ground or floor around the project site. Other pieces are smaller but can still be seen because they resemble dirt in size. Still others break down to the size of fine dust that is difficult to detect with visual inspection.

The dust then settles on the surface that is to be coated, and, since the dust is not easily detected visually, it remains on the surface during the application of the coating. A portion of the paint is applied on the dust instead of the surface. Since there is no adhesion of the dust to the surface, the integrity of the coating system is lessened. The amount of coating sticking to the surface compared to the amount of coating sticking to the dust will determine the adhesion.

Dust contamination can occur at any time, not just when applying the primer to the substrate ... So check each surface before it is coated.

METHODS OF DETECTING AND REMOVING DUST

To detect the presence of dust and other air-borne contaminants on the surface, wipe the surface with a clean rag. If the rag is visibly dirty, the surface is too contaminated. Another method is to take several strips of clear tape and press them to the surface to be coated. Then remove the tape and perform a visual inspection of the sticky side of the tape to determine if any fine particulates are attached to the sticky side of the tape. If an excessive amount is found, then the surface is contaminated. It is almost impossible to remove all dust and dirt from a blast-cleaned surface, so some judgment is needed when using the tape test.

Dust contamination can occur at any time, not just when applying the primer to the substrate. Painting over a primer contaminated with dust can cause the coating to peel at a later date. So check each surface before it is coated.

To remove the dust found on the surface to be coated, you can use the air supplied by the air compressor employed during the blasting operation. If you are not careful, the process of removing dust can also deposit contaminants.

It is very important to ensure that the compressed air has remained clean and does not have moisture or oil in it that will be deposited on the surface. You can check the air by performing a white rag cleanliness test. Take a white rag and hold it in front of the air stream. If you are using the blast nozzle, make sure that the blast medium valve is turned off. Turn the air on, and allow it to blow on the white rag for at least a full minute. Turn the air off, and inspect the rag. If the rag is clean, then the air system is free of impurities. If moisture or oil is present, either black dots or wet spots will be present. Clean the traps and separators, and perform the test again until there are no indications of moisture or oil on the rag.

After the air is clean, blow down the surface to be coated and perform the tape test again. If contaminants are still present, continue to blow the surface clean until there are no more indications on the pieces of tape. The tape should then be affixed to the daily reports for a permanent record of the cleanliness of the surface prior to the application of the coating. JPCL

PHOTO: THAWEESAK THIPPHAMON / GETTY IMAGES

REFURBISHING CONCRETE CLARIFIERS

BY PAUL POWERS, MID-CENTRAL REGIONAL MANAGER, INDURON PROTECTIVE COATINGS

When three large concrete clarifiers at Adams Field Water Reclamation Facility in Little Rock, Arkansas, began showing signs of erosion, owner/engineer Little Rock Water Reclamation Authority hired Thomas Industrial Coatings to coat the weir troughs before additional loss occurred and more costly repairs were required. The contractor turned to Induron Protective Coatings for coatings expertise and product specifications for the project.

THE COATINGS SOLUTION

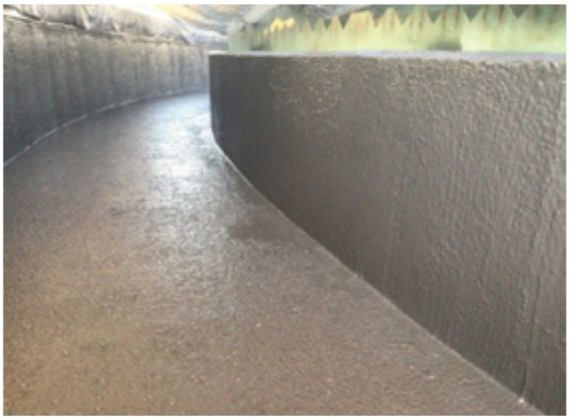
To specify a solution, Induron considered the owner's expectation for the finished product, the condition of the existing concrete and the typical environment created by immersion service in wastewater solutions. With these factors in mind, the manufacturer recommended Mortarchem Ceramic Modified Cementitious Epoxy Mortar[1] and Ceramasafe 90 Ceramic Epoxy.[2]

A high-performance epoxy modified cementitious surface and repair mortar, Mortarchem was selected to restore the concrete surface prior to applying the lining material. Designed with proprietary technology – including a unique ceramic modification package – the product was created to improve on the application and performance challenges associated with other cementitious epoxy mortars.[3,4] In addition to simplifying application in the field, Mortarchem fills bug holes, seals pores and mitigates outgassing.

While Induron's Protecto 401 Ceramic Epoxy has been the industry standard for handling untreated wastewater influent for decades, Ceramasafe 90 brings this same 35-year track record of ceramic epoxy performance to other treatment plant assets and was deemed the best solution for the demands of this project. The impermeability of the cyclo-aliphatic resin's ceramic pigment, combined with its performance and high-build characteristics,[5] were the right choice for a wastewater environment.



Pre-primer applied



Finish coat applied

THE BENEFIT OF TEAMWORK

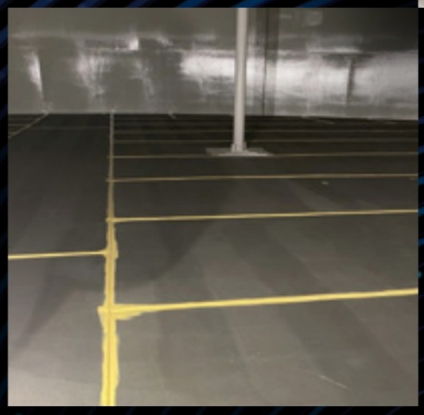
While the Thomas crew had not done much work with Mortarchem prior to this project, solid teamwork from Thomas Project Foreman Jeff Reed and Induron Technical Services Director William Seawell made the application a complete success. The two of them demonstrated what a cohesive partnership between a coatings contractor and hands-on supplier can accomplish. Thomas Project Manager John Lyons praised the products and Seawell's efforts on more than one occasion for making it such a smooth-running venture.

Watch a video about the project: bit.ly/refurbcc

1. bit.ly/mcmcem
2. bit.ly/c90ce
3. bit.ly/4probem
4. bit.ly/mcoutcomes
5. bit.ly/csspotlt

PHOTOS: COURTESY OF THE AUTHOR

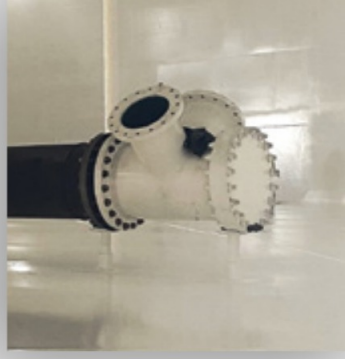




THE FUTURE OF WATER TANK INTERIORS

The Recoating of the Norma Marshall Reservoir

BY PAUL TRAUTMANN AND JOSH SKINNER,
SHERWIN-WILLIAMS PROTECTIVE & MARINE



For a glimpse into the future of interior water tank linings, look no further than the refurbishment of the Norma Marshall Reservoir in Temecula, California. Looking to extend the life of the nearly 40-year-old, 4.8-million-gallon above-ground welded steel reservoir, Rancho California Water District officials opted for a 100%-solids epoxy system to replace existing polyurethane- and epoxy-based linings. Those linings had started to show significant wear after only a dozen years, prompting the district to consider a new option. The high-solids-based strategy offered the water district a quick turnaround – allowing the tank to be disinfected and placed back in service 24 to 36 hours after completion of repairs – for a total project duration of just four months.

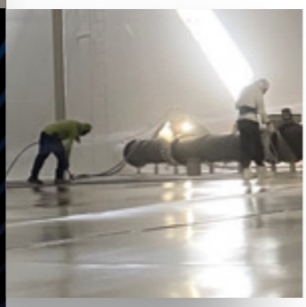
Completed in mid-2021, the project also brought the tank into compliance with new NSF/ANSI/CAN 600 standards for potable water – which took effect this January – nearly a year and a half early.



A Chip Off the Old Coatings

Last recoated in 2008, the 160-foot-diameter reservoir with a 34-foot shell height had an interior coated with 30 to 50 mils of a unique hybrid 100%-solids elastomeric polyurethane system for the roof and rafters, with an epoxy on the bottom plate and floor.

Before beginning restoration of the tank's lining, the project's applicator found the existing coatings to be in poor condition. While most tank owners may hope for a coating system to last twice as long, the Norma Marshall's interior was experiencing significant delamination. Coatings were blistering, peeling and becoming detached from the steel, which compromised the integrity and, potentially, the longevity of the steel tank. Initial inspection revealed conditions in the tank's vapor zone were especially compromised, including significant rust on rafters, clips and the center column where the elastomeric polyurethane system was used.



The tank's interior provided ample space for mobilization, yet removing old coatings from the roof proved initially challenging. Given the thickness of the existing lining, crewmembers forewent abrasive blasting – reasoning that blast media would have trouble penetrating the thick layer. They instead elected to use air-powered chippers to get under the coating and remove it.

Next, using recyclable abrasive steel grit 25, crewmembers dry blasted all interior tank surfaces to the SSPC-SP 10/NACE No. 2, Near-White Metal Blast Cleaning standard, leaving a steel surface free of coatings and residues with a minimum 2-mil profile to promote adhesion. After

ILLUSTRATION: TORI ART / GETTY IMAGES;
PHOTOS: COURTESY OF THE SHERWIN-WILLIAMS COMPANY



FIG. 1: Applicators applied stripe coats, using a combination of brushing and rolling techniques, to cover weld seams, bolts, and edges at a thickness of 4 to 8 mils DFT.

collecting the grit, crew members placed it in a recycler to separate out paint chips and other debris. Later in the job, upon completion of the roof and shell, the project team used a self-propelled, self-contained shot blaster to reduce dust and particles while preparing the floor.

The tank also required the protection of an intricate system of internal piping that needed additional care during surface preparation and the application of coatings. Before beginning interior blasting, contractors used small mobile cranes to temporarily remove and safeguard the interior mixing system's piping — made up of high-density polyethylene (HDPE) piping, steel appurtenances, fittings and supports, and check valves — which can be especially susceptible to corrosion.

Charting New Waters

The majority of ground storage reservoir tanks feature multi-coat systems to cover their interior roofs and rafters, which are full of sharp angles and edges where angle iron is welded and bolted to the structure to give it strength. The multiple coats are meant to ensure adequate coverage of all edges, outside corners, bolts, crevices, and other irregular steel surfaces. However, the Norma Marshall tank's owner recognized the benefits of using an edge-retentive 100%-solids epoxy, which can be applied in a single high-build coat, to extend the tank's service life.

The material would need to provide corrosion resistance for all vital areas of the tank, as well as excellent edge retention, which included the ability to sufficiently cover corners, angles and bolts with a single coat. These preferences contributed to the choice of a two-component, edge-retentive, low volatile organic compound (VOC) rating, low odor, ultra-high-solids epoxy amine coating. The product replaced the elastomeric polyurethane that had been previously used on the tank. In addition, it displaced traditional solvent-rich epoxies that would have otherwise been used and would have required additional coats and longer cure times.

The epoxy amine coating system was also designed to control corrosion in the vapor space above the water line and the structural steel of the roof, including beams, as well as to protect the remainder of the immersed tank. The coatings system was also compliant with NSF 600 ahead of the new standard's implementation in January 2023.

Applicators began by applying a stripe coat of a different two-component, ultra-high-solids epoxy amine coating to critical areas such as weld seams, edges, angles, bolts and more ***(Fig. 1)***. This primer was used due to its exceptional surface wetting and adhesion properties, as well as its ease of use for brush applications compared to the topcoat material. The primer, recommended for immersion service in various tanks, was applied with ease at a thickness of 4 to 8 mils DFT using a combination of brushing and rolling techniques. It was only used for the stripe coat.

Subsequently, the interior surfaces of the reservoir, including the roof, shell and floor, along with edges, nuts, bolts, welds and joints, received a topcoat of the originally mentioned epoxy amine coating ***(Fig. 2, next page)***. The crew applied two coats to the roof and rafters, for a total thickness of 24 to 36 DFT, which offered extra protection for good measure. The floor and shell

PHOTOS: COURTESY OF THE SHERWIN-WILLIAMS COMPANY



FIG. 2: The tank's interior surfaces—including the roof, shell and floor, along with edges, nuts, bolts, welds and joints—received a topcoat of an epoxy amine coating.



FIG. 3: **The roof and rafters received two coats of the ultra-high-solids formulation, sprayed for a total thickness of 24 to 36 mils DFT, while the floor and shell received one coat.**

received one coat, at a thickness of 24 to 36 mils DFT, sprayed to ensure optimal coverage ***(Fig. 3)***.

The epoxy amine coating, which is specially engineered for immersion service in potable water pipes and storage tanks, proved instrumental in providing superior protection, with its high-build properties and its greater than 70% edge retention.

Applicators used nearly 2,000 gallons of the fast-curing coating, which also has a low VOC rating that met all standards set by the region's South Coast Air Quality Management District, which are some of the strictest in the country.

Precision in Tight Spots

Throughout multiple visits, the coating manufacturer's technical representatives provided assistance to the contractor crew, especially during the roof and subsequent floor coating applications. They helped the team set up two plural component pumps on-ratio, which ran concurrently, using transfer pumps to pull the coatings directly from the drums.

This efficient setup enabled applicators to easily reach the tank's upper corners and crannies using scaffolding. A crew of three, consisting of an applicator, a crewmember adjusting the sprayer and another conducting wet film thickness (WFT) mil checks, successfully completed the challenging roof area in a timely manner.

The coating manufacturer's technical representatives proved invaluable to the success of the project by providing essential consumables, including spray tips and housings. In addition, they imparted their expertise to water district personnel on the proper repair of any damage to the coatings.

PHOTO: COURTESY OF THE SHERWIN-WILLIAMS COMPANY

With coating thicknesses notoriously difficult to measure or inspect in the tank's roof and rafter areas, applicators coated these sections with confidence, guaranteeing the tank's durability and service for the benefit of the Rancho California Water District and its patrons.

After completing the roof and shell coatings, applicators cleaned, prepared and coated all the mixing system components ***(Fig. 4, next page)*** outside the tank and then reinstalled them with new non-asbestos rubber gaskets.

During the project, unforeseen mechanical issues emerged with the tank's support system. Following the observation of metal loss from the blasting, the project team had to undertake extensive repairs, including the replacement of the center vent and seven rafters. The team also took on the task of fixing nearly 60 rafter-to-shell clips by fitting them with new nuts and bolts – and installed an entirely new set of earthquake rods to reinforce mid-span bracing.

With sometimes as little as 60 days to get tanks back in service, the consistency of the epoxy amine coating system helped the contractor complete restorations in a timely manner, even when unexpected issues arise.

Conclusion: Back in Service

An owner-led inspection confirmed the thickness of the coatings, passing with flying colors – and found only three holidays.

The majority of ground storage reservoir tanks feature multi-coat systems to ensure adequate coverage. However, the owner recognized the benefits of using an edge-retentive 100%-solids epoxy, which can be applied in a single high-build coat, to extend the tank's service life.





FIG. 4: The tank's mixing system was removed and cleaned, then prepared, and coated by applicators before reinstallation with new non-asbestos rubber gaskets.

"For a tank that size, to have only a handful of holidays was impressive," said Jake Wiley, Assistant General Manager of Engineering & Operations for the Rancho California Water District. "The few touchups cured quickly, and the tank was back in service soon – welcome news to everyone."

With the high-solids coatings containing no VOCs, the prospect of extractables in the stored water was nil – helping the tank pass water safety tests with ease and ensuring Rancho California Water District customers will have quality drinking water for years to come.

"The project gave us no concerns about what may leach into the water and affect quality," said Wiley. "Given new national standards, this approach could serve as a model for tanks anywhere in the country." JPCL

ABOUT THE AUTHORS



Paul Trautmann has 30 years of experience in the paints and coatings industry working in various capacities, including 20 years with Sherwin-Williams Protective & Marine, where he is currently Market Director of the Water Infrastructure segment. Trautman has authored technical papers related to protective coatings and presented educational programs at SSPC's past Coatings+ conferences and regularly hosts educational luncheons for municipalities, industrial facility owners and consulting engineering firms.



Josh Skinner is a Senior Technical Sales Representative, with an owner and engineering focus in water and wastewater, for Sherwin-Williams Protective & Marine in the Los Angeles market. With the company since 2008, Skinner has served as Operations Manager, Store Manager and Commercial Sales Representative in the Stores Group of The Sherwin-Williams Company.

PHOTOS: COURTESY OF THE SHERWIN-WILLIAMS COMPANY







In January of 2021, the Brownsville Public Utilities Board (BPUB) in Texas began its South Wastewater Treatment Plant Improvements Package 5 project, which involved rehabilitating existing equipment and expanding the plant's capacity to 12.8 million gallons per day (MGD). The general contractor's scope of work included upgrading and retrofitting the headworks grit processing system and influent channel rehabilitation. This included the rehabilitation of four 21-foot by 21-foot grit channel basins, a six-inch pipe spool, and a six-and-a-half-foot by five-foot influent channel.

POLYMER COATINGS

FOR RESTORING WASTEWATER TREATMENT PLANT STRUCTURES

BY HUNTER SANSONE, A&W COATINGS





FIGS. 1A *(PREVIOUS PAGE)* AND 1B *(BELOW)*: **The grit channels and basins at the South Wastewater Treatment Plant had been previously lined, but the coating had begun to delaminate over time.**

The grit basins were responsible for filtering solids from the wastewater that entered the facility through the plant headworks and bar screens, into an influent distribution channel. The channel and grit equipment were heavily corroded after years of exposure to H_2S gas and abrasive materials such as sand and dirt.

The grit basins had been previously lined with a protective coating material, but the existing coating had begun to delaminate over time. To prevent a coating failure from reoccurring, BPUB wanted a proven coating solution with long-term adhesion characteristics and a strong history of documented corrosion and abrasion resistance.

Although the owner had requested a coating system that was previously specified for use on the project, the general contractor working on the facility's improvements project proposed the use of a different high-performance epoxy system. The owner reviewed proposed system against the previously specified coating and ultimately selected the alternative, solvent-free, high-build epoxy as the best value solution based on a faster application schedule and performance data. As such, a certified coating applicator was selected to apply this epoxy system to the rehabilitated structures.



FIGS. 2A *(RIGHT)* AND 2B *(NEXT PAGE):* Surface preparation involved using hammer chisels to remove the existing polyurethane lining, then abrasive blast-cleaning to achieve the required surface profile.



Based on the plant's operational guidelines, the contractor could only coat two basins at a time from start to finish while the other two remained in service.

Work Sequencing

The first step of surface preparation required removing the existing polyurethane from the basins using hammer chisels, followed by abrasive blast-cleaning to remove the remainder and achieve the surface profile required. Once removed, each basin was rinsed with a final wash to eliminate any remaining dust, dirt, and debris.

The application crew coated the upper five-and-a-half feet of the grit basin walls from the splash zone to the top of the vapor space, as well as 31 feet of a six and a half foot by five-foot influent channel, with 200 mils of the epoxy coating. Lining the splash zone was important because this area is the most common failure point for coatings due to the constant cycling of immersion to non-immersion and exposure to corrosive H_2S gases being trapped by the plant's odor control system. In addition, the applicators lined an existing six-inch pipe spool using a brush to eliminate a potential future leak in the bottom of an existing cast-in-place wall spool. The lining of the existing wall spool added additional service life for the encased piping.

Based on the plant's operational guidelines, the contractor could only coat two basins at a time from start to finish while the other two remained in service. The crew started by lining the first two grit basins, followed by the pipe spool and influent channel during the change of service. Once the first two grit basins were returned to service, the contractor completed the

PHOTOS (PAGES 24-27): COURTESY OF WARREN ENVIRONMENTAL



FIGS. 3A *(RIGHT)* AND AND 3B *(PAGE 30):* **The newly applied coatings are expected to protect the structures from abrasion and corrosion and extend their useful service life.**

project by lining the last two grit basins as they came offline.

This process was completed within the required three-week time frame to maintain the general contractor's schedule, with the help of the single-coat epoxy coating application and quick cure time. Satisfied with the coating application, the owner initiated a change order to add scope to include the lining of a 3-foot by 3-foot by 12-foot bypass channel in the facility's headworks.

Project Challenges

The application crew experienced sweltering heat while on site, with heat indexes consistent at, or over, 100 degrees F, coupled with heavy rainfall. To work through the weather challenges and maintain the schedule, the contractors coated each of the grit basins at night.

Unlike other coating technologies such as polyureas, polyurethanes and solvent-thinned epoxies, this epoxy coating's high moisture tolerance allowed applicators to spray the concrete surfaces with little concern for the water-saturated concrete or high-humidity environment. The single-coat, quick cure epoxy system maintained the project's budget and schedule when compared to the originally specified urethane coating, leading to a huge success for everyone involved.

PHOTO: COURTESY OF WARREN ENVIRONMENTAL

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PHOTO: COURTESY OF WARREN ENVIRONMENTAL

Not only did the contractor's expert application solve the owner's problems of an existing failed coating, but the epoxy coating also structurally enhanced the assets and extended their useful service life.

Successful Completion

The BPUB was reportedly pleased with the outcome of this project using the epoxy coating system. Not only did the contractor's expert application solve the owner's problems of an existing failed coating, but the epoxy coating also structurally enhanced the assets and extended their useful service life by protecting them from corrosion and abrasion with superior adhesion.

Despite the temperature extremes and humid environment, the epoxy's high moisture tolerance allowed for ease of application and successful, on-time project delivery. In the future, the team will return to the site to conduct a five-year reinspection to observe the epoxy application's performance over time. JPCL

ABOUT THE AUTHOR



Hunter Sansone is an Assistant Project Manager with A&W Coatings. He has been with the company since 2019 and specializes in the application of high-performance epoxy coating products while maintaining high standards for quality and safety. Sansone is an AMPP-certified Coatings Inspector and earned a bachelor's degree in construction engineering from Texas Tech University.



PHOTO: IAM ANUPONG/ GETTY IMAGES

2023 ANNUAL DIRECTORY OF INDUSTRIAL PAINTING CONTRACTORS

The 2023 JPCL Annual Directory of Industrial Painting Contractors includes listings for painting contractor companies located primarily in North America, but also around the world. The information presented was obtained through a survey conducted among painting contractors known to JPCL and is displayed in alphabetical order by country, and then by state or province.

Expanded details for each company – including contact information, web addresses, breadth of industry experience and specialty services – are available in the fully searchable digital edition of the Directory at **paintsquare.com/bg**. While contractors have paid an advertising fee for oversized entries, regular listings are entered at no cost to companies.

If your company does not appear in these pages, you can still submit information for the 2023 online edition by contacting Nichole Altieri, Business Administration Manager, naltieri@technologypub.com.

INSIDE

Featured Contractors 34

Contractors by Location

International 36

USA by State 38

JPCL, jpcl.com and paintsquare.com are owned by parent company, Technology Publishing Co. Information submitted by contracting companies is thought to be current but has not been verified.

NEWS FROM THE TRACKER



PHOTO: WASHINGTON STATE DOT / FLICKR.COM

WA Bridge, SC Pump Station Jobs Awarded

Out to Bid: PA Pump Station Project

BY KONSTANTINE FEKOS, PAINT BIDTRACKER

PROJECT AWARDS

Liberty Maintenance Inc. (Youngstown, Ohio) has been awarded a $20,650,402 contract from the **Washington State Department of Transportation** for painting and repairs to three existing bridge structures along State Route 529 over the Snohomish River.

The project involves cleaning and coating of metal and wood substrates. The contractor will also oversee coating and repairs to the control house, containment of waste and abrasives, structural and mechanical rehabilitation, concrete repairs and miscellaneous site work.

Ferrous and galvanized metal surfaces, wood surfaces, pipes, coverings, conduits, mechanical and electrical items, and supports will be coated with a latex coating system. Concrete surfaces will require an epoxy overlay. Specified surfaces will require galvanizing, galvanized touch-ups and aluminizing.

Surfaces will require preparation in accordance with standards for Solvent Cleaning (SSPC-SP 1), Commercial Blast Cleaning (SSPC-SP 6/NACE No. 3), Near-White Metal Blast Cleaning (SSPC-SP 10/NACE No. 2) and Commercial Grade Power Tool Cleaning (SSPC-SP 15). The project includes removal and disposal of asbestos-containing materials. The owner-approved manufacturers for this project include Benjamin Moore & Co., PPG Paints and Sherwin-Williams.

Liberty Maintenance was the lowest of two apparent bidders; the other bid submitted was from Southern Road & Bridge LLC of Tarpon Springs, Florida, in the amount of $27,645,707.50.

Dorchester County, South Carolina, has awarded a project in the amount of $9,970,332 to Level Utilities (Georgetown, South Carolina) for coating and rehabilitation of Sewer Pump Station No. 72.

The project involves the application of three-coat epoxy and polyurethane systems of epoxy and polyurethane on exterior and interior ferrous metal piping, stands and valves. Wet well concrete surfaces will also require application of a single coat of coal-tar polyamide epoxy.

Surfaces will require preparation in accordance with standards for Commercial Blast Cleaning (SSPC-SP 6/NACE No. 3), Near-White Metal Blast Cleaning (SSPC-SP 10/NACE No. 2), and Surface Preparation of Concrete (SSPC-SP 13/NACE No. 6). Owner-specified manufacturers include Sherwin-Williams and Tnemec.

Additional bids submitted:

- Reeves Young (Sugar Hill, Georgia) in the amount of $11,120,000;
- Wharton-Smith, Inc. (Tampa, Florida) in the amount of $11,545,000; and
- Ruby-Collins, Inc. (Smyrna, Georgia) in the amount of $12,585,800.

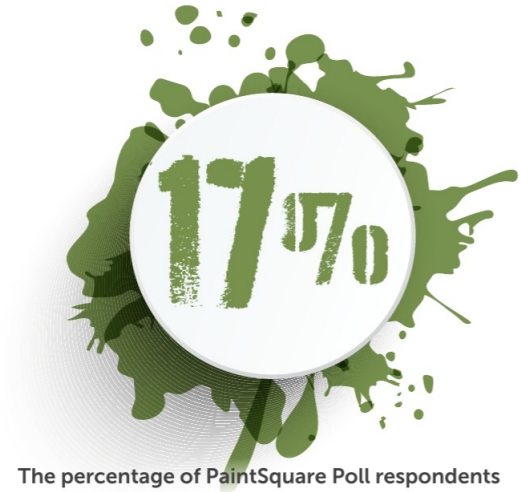
PROJECT PREVIEW

The **Lancaster Area Sewer Authority** in Pennsylvania is soliciting bids for coating and upgrades to the Cocalico Creek sewage pumping station and force main.

The project involves applying a three-coat epoxy system on ferrous metal surfaces, interior concrete masonry units and steel water piping. A three-coat latex system will be applied on electrical conduit surfaces and exterior concrete masonry units. A two-coat penetrating sealer system is required on specified concrete surfaces, including wet well and valve vault interiors, as well as exposed surfaces. A three-coat system of zinc-rich primer and wastewater immersion lining will be applied on pump discharge piping, pumps, motors, and force main substrates.

Surfaces will require preparation in accordance with standards for Near-White Metal Blast Cleaning (SSPC-SP 10/NACE No. 2). The owner-approved coating and lining manufacturers for this project include Carboline, Sherwin-Williams and Tnemec. The submittal date for this project is Sept. 14.

PAINT BY NUMBERS



The percentage of PaintSquare Poll respondents who believe that not enough is being done to address residents' concerns of peeling lead paint on Boston's Tobin Bridge. *See p. 9*



The types of invisible contaminants—soluble salts, hydrocarbons and dust—that are discussed for detection and removal in this month's Coatings 101 article. *See p. 10*



The size of the Norma Marshall Reservoir in Temecula, California, which was recently recoated with an edge-retentive, 100%-solids epoxy lining. *See p. 16*



The capacity of the expanded South Wastewater Treatment Plant in Brownsville, Texas, which underwent coatings rehabilitation on several treatment structures. *See p. 24*



The value of a recently awarded contract from the Washington State Department of Transportation to perform painting and repairs on three bridges. *See p. 44*



The number of coating contracting company listings in the 2023 JPCL Annual Directory of Industrial Painting Contractors. *See p. 33*

ILLUSTRATION: ABERT84 / GETTY IMAGES