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EVOLUTION OF HYDRODENOLITION





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ON THE COVER: Using a robot with vertical capabilities on a tunnel arch, featured on page 21.



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PRESIDENT'SMESSAGE



Hello to all my ICRI friends and colleagues! As I write this, we are preparing for the Austin Spring convention. It's shaping up to be a tremendous success, and we will hopefully have record or near-record attendance. For me, it is that twice a year chance to see my best friends in the industry; better the business of concrete repair through education and the creation and maintenance of consensus repair guidelines and specifications; and network

GERARD MOULZOLF

with clients, producers, and the best engineers and contractors in the business.

If you ask me what my presidency is about, it's simple: engagement. And while it's not too different from our immediate past president, the great communicator and connector Brian MacNeil, it's really what we both believe in and excel at. As he passes the gavel in Austin, it will be from one of the best friends that I have made in this industry. Brian is a trusted friend who did wonderful things for the organization. During his presidency, we've reached historic membership numbers, including supporting memberships. He also joined our Executive Director Eric Hauth to present at an important European counterpart repair organization's annual conference in Madrid, Spain, increasing our international reach. And he helped lay the groundwork for a new ICRI Mexico affiliate organization. He continues to support us as an active Past President and is a constant source of leadership and advice.

Love ya, Brother!



Recently, along with Executive Director Eric Hauth, I had the honor of hosting two virtual roundtables for our Supporting Members. This was a great opportunity to connect with some of our Supporting Member representatives and share the exciting things we're doing at ICRI to build our "Road to 40"—ICRI's 40th anniversary, which is just a few short years away. This idea of a Road to 40 got us thinking.

First, like any new road, you have to know where you're going, and you have to find the most efficient way to get there. You have to put down the materials for a lasting road, so you don't end up with a bunch of potholes along the way! And most importantly, you need the best possible team to build the road, so it lasts. From where I sit, ICRI has all these crucial pieces in place.

WHERE ARE WE GOING?

For the first time ever, we've launched hands-on repair training for applicators. This program is gaining momentum with chapters and member companies. This program truly reflects what ICRI is all about—elevating the quality of repair across the industry.

We're also refining our professional development focus so we can even better achieve ICRI's core mission—making the built world safer and longer lasting.

We're also about to launch a new closed AI platform to provide specific, tailored answers to member questions—in multiple languages as needed. This exciting new platform will leverage all the amazing ICRI technical content produced over the past 3+ decades to address real problems in real time and give us much better insights about what the market is looking for from ICRI.

WE HAVE AN EXCITING ROAD AHEAD

Of course, roads don't just start in the middle of nowhere. They come from somewhere. That somewhere for ICRI is the 37 years of dedication and commitment by countless volunteers, at the national level and throughout our many chapters. That somewhere is the industry-leading guidelines developed by ICRI. That somewhere is our chapter network across North America, which is the lifeblood of ICRI. There is no ICRI without them and without each of you—members, Supporting Company members, exhibitors, and sponsors.

This is where we've been, and this is what we get to build on for the road ahead. Our future destination on the Road to 40 doesn't mean anything if it doesn't connect back to this amazing history.

With our talented and dedicated full-time staff team and our SMEs that support them, we have all the right pieces on our team to build the Road to 40. We're excited about the future and we're grateful that you're all on this journey with us, together.

Your most grateful, and humble servant,

Gerard Moulzolf

Gerard Moulzolf President, International Concrete Repair Institute



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ICRI conducts an annual awards program to honor and recognize outstanding projects in the concrete repair industry. Entries are received from around the world, and the winning projects are honored each year at the annual ICRI Awards Luncheon at the ICRI Fall Convention.

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MENTALHEALTH**MATTERS**

by Cal Beyer

OVERCOMING STIGMA RELATING TO MENTAL HEALTH

The mental health and well-being challenges of the construction industry workforce have garnered much attention over the past decade. Workers in this field face significant mental and behavioral health challenges, including elevated rates for many conditions and outcomes compared to the general United States population. This trend is particularly common in industries dominated by male workers.

Yet, a vast majority of workers in need suffer in silence rather than actively seeking care for conditions that are treatable. *Why is there such resistance to seeking and accepting help?*

Simply put, stigma remains a major barrier to addressing mental health. Stigma includes both external judgment and internal bias related to attitudes, beliefs, and perceptions about mental health and substance use. It reflects how societal norms and conditioning have led many people to think negatively about these issues or avoid the topic altogether.

Stigma is a real but invisible barrier that keeps family members, neighbors, friends, and co-workers from offering, seeking, or accepting help with mental health. It is the single biggest obstacle to addressing workplace mental health, substance misuse, and suicide prevention. Until families, companies, and society can overcome stigma, it will remain a barrier to effectively offering and accepting support.

THE POWER OF THE NO SHAME PLEDGE MOVEMENT

The No Shame Pledge, developed by national nonprofit SAFE Project, is an effective "stigma-busting" tool. Employers, unions, families, and individuals are increasingly using the No Shame Pledge to break the ice and reduce the stigma associated with substance use, misuse, and addiction. By taking this pledge, organizations and individuals commit to fostering an environment where people feel safe seeking help without fear of judgment.

In doing so, these leaders are not only opening doors to multiple pathways for treatment and recovery, but also eliminating the stigma, shame, and blame often associated with these struggles. See Figures 1 and 2 for an example of the No Shame Pledge and how it can help your organization reduce stigma while promoting prevention and recovery for all mental health conditions.

Companies interested in adopting the No Shame Pledge can do so by sharing the QR code provided by SAFE Project. Two-sided postcards of the No Shame Pledge exist in both English and Spanish that allow for an extended Toolbox Talk or jobsite Safety Huddle to encourage discussions about addiction, treatment, recovery, and mental well-being.





Fig. 1: Front page of the No Shame Pledge offered by SAFE Project



Fig. 2: Back page of the No Shame Pledge offered by SAFE Project



Cal Beyer, CWP is the Senior Director of SAFE Workplaces for national nonprofit SAFE Project. SAFE stands for Stop the Addiction Fatality Epidemic. SAFE Project works with veterans and caregivers, communities, campuses (college and K-12 schools), and workplaces to teach prevention of substance use and addiction treatment and recovery. Beyer has over 30 years of experience as a risk management and safety professional. He has been

dedicated to construction and manufacturing since 1996 and has been an advocate for workplace mental health since the mid-1990s. Reach Beyer at cal@safeproject.us or via cell at 651-307-7883.



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THE EVOLUTION OF HYDRODEMOLITION

The Impact-Free Removal and Repair Method for Extending the Life of Concrete Structures

by Keith Armishaw

In the early 1980s, the Swedish National Road Administration (SNRA) had a problem. The conventional way to repair a bridge was to remove concrete with jackhammers, but core samples on those projects revealed microcracks in the original parts of the structures.¹ And, as it turned out, the consequences of those tiny cracks were huge. They compromised the quality of the repair, which reduced how long it lasted and ultimately shortened the life of the structure.

According to the European Water Jetting Institute, this prompted the SNRA to initiate a project to seek a science-based solution.¹ From that project, a new, nondestructive method of concrete removal emerged: hydrodemolition.

For those not familiar with the term, hydrodemolition is a technique that uses a high-pressure water jet to remove layers of concrete. It's an impact-free process, eliminating the impact responsible for microfractures (Fig. 1). While the primary goal of the SNRA initiative was to remove microcracks from the equation, industry leaders identified additional benefits over time. By controlling the water jet mechanically, the concrete removal process became faster and more precise. These encouraging findings stimulated a whole new industry that has been preserving concrete structures for more than 35 years.

TURNING UP THE PRESSURE

Today, a full hydrodemolition system includes a robot, a highpressure pump, and a fully automated water treatment plant. The first systems included a semiautomatic robot to control a newly developed water jet and a high-pressure pump, which already existed for other types of water jetting tools.

Pumps have evolved to be more reliable and to offer higher and higher water pressure output. When hydrodemolition was in its infancy, for example, 14,000 psi (965 bar) pumps were used. But in the high-pressure world, 14,000 psi (965 bar) is now the low range for pumps that go as high as 40,000 psi (2760 bar).

The greater range of pressure is desirable because it allows increased flexibility and precision. Water pressure, along with flow, are primary factors that affect the depth and speed of the removal. If an asset owner or engineer wants to only remove deteriorated concrete and leave the sound concrete intact, they might choose to operate at 15,000–20,000 psi (1034–1380 bar) to achieve that selective removal. If the operator is charged with concrete surface





Fig. 1: Hydrodemolition is an impact-free technique that uses a high-pressure water jet to remove concrete

preparation, for example, then they can make the choice to use 30,000–40,000 psi (2070–2760 bar) to achieve that goal. Having the choice to use the right pump for the project, whether higheror lower-pressure, makes hydrodemolition an even more attractive option for concrete removal and surface preparation.

To make these pressure gains, equipment manufacturers had to improve pump design and component durability, which also increased reliability. Today's most sophisticated pumps are longrunning units that enclose the pump system, protecting workers if a hose bursts, for example. The enclosed pumps also protect workers from excessive noise. It's possible to stand by an enclosed, silent high-pressure pump running at its highest RPM and carry on a conversation in a normal tone of voice (Fig. 2).

Along with more refined, advanced pumps, industry stakeholders learned so much more about ultra-high-pressure water. Through decades of experience and the educational efforts of organizations like the Water Jetting and Technology Association and the European Water Jetting Institute, those who perform the work are masters in their field.

INCREASING CAPABILITIES

When hydrodemolition robots were first manufactured, the basic idea was to control the high-pressure water jet to apply consistent energy to the entire concrete surface and control the depth of removal.

Fig. 3: Hydrodemolition machines today specialize in a wide range of concrete removal and repair jobs





Fig. 2: Powerful high-pressure pumps operate as high as 40,000 psi (2760 bar) to provide ample power and material removal speed

With increased demand to bring hydrodemolition to more types of projects, manufacturers engineer today's machines to specialize in a wide range of concrete removal and repair jobs that go beyond the flatwork applications they were initially designed for. They are engineered with the capabilities to efficiently perform hydrodemolition overhead, on walls, or below grade on roads and bridges, tunnels, dams, pillars, underwater structures, and building interiors, just to name a few (Fig. 3, 4).

In hydrodemolition's early days, most robots were controlled by manual hydraulic valves and basic relays. Machines had a limited number of electronics—they didn't have computers to perform automated functions. And when a problem occurred, the operation needed someone with good mechanical knowledge to troubleshoot the machine.

Over time, manufacturers have gathered customer feedback and conducted research to take hydrodemolition robots from rudimentary machines to incredibly advanced pieces of equipment. Robots are now built with programming logic controllers, sensors, and an operator interface. Their systems feature settings to cut different shapes like circles, triangles, and rhomboids. They can even be programmed to seamlessly cut to different depths in one pass without stopping. The high-pressure lances themselves have improved with better nozzles and better flow dynamics.

Historically, lances moved in either an oscillating or rotating motion—but in recent years, some manufacturers have discovered that combining the two movements to create a figure 8 pattern provides optimal production without making pipe holes. The figure 8 pattern creates a constant speed over the concrete surface that results in greater production and a rough but even finished product, leaving an ideal bonding surface for new concrete. This allows for longer-lasting repairs than could have been achieved with manual impact tools.

Despite technological advancements, hydrodemolition robots have become much simpler to use with many more automated functions. Some even let users know when an error occurs to make troubleshooting more streamlined. Hydrodemolition robots are now designed to work reliably for long hours at a time on the jobsite. Dependable equipment and partnering with a responsive manufacturer with spare parts on hand helps ensure maximum uptime to get projects done on time.



Fig. 4: Manufacturers have conducted in-depth research to incorporate never-before-seen capabilities into Hydrodemolition machines with systems feature settings to cut different shapes like circles, triangles, and rhomboids

There have been incredible leaps from the first hydrodemolition robot to today's machines. And evolution will only continue. Utilizing the most state-of-the-art equipment gives contractors an advantage to get the highest-quality results and complete the longest-lasting repairs.

ENVIRONMENTALLY SOUND

Hydrodemolition work can't be completed without considering water management and how to treat water respectfully while following local regulations. Hydrodemolition, by its nature, uses water, so the industry has engineered solutions to help contractors take a proactive approach to properly handling, treating, and even reusing wastewater.

Early on, before a manufactured solution existed, contractors often went to great lengths to cobble together a system to capture and treat the wastewater. It was time-consuming and labor intensive, often requiring chemicals to treat the water and continuous manual testing. Some hired a third party to collect and treat the water, which increased the cost of the project. Today's water treatment systems are compact and fully automated, streamlining the process. The systems treat the hydrodemolition wastewater for pH and remove suspended solids, so contractors can either release it into sanitary or storm sewers, or they can recirculate the treated water through the equipment. By recycling the water in this manner, they greatly reduce the amount they need, which is good environmental stewardship and reduces water costs. Automatic, continuous monitoring makes it much easier to comply with local regulations and provide documentation that requirements are met (Fig. 5).

A manufactured water treatment solution was a much-needed piece to the puzzle and a game changer in the evolution of hydrodemolition.

HYDRODEMOLITION AS THE GOLD STANDARD

Over more than three decades, the hydrodemolition industry has achieved many milestones. Overall knowledge about concrete repair has increased, thanks to organizations like the International Concrete Repair Institute. Manufacturers continue to develop the equipment, making strides in productivity, safety, operability, and reducing environmental impact. And hydrodemolition contractors continue to build their expertise, offering the best solution to a decades-old problem.

That leads to the most elusive milestone. The goal for all stakeholders has always been to give concrete structures the longest possible lives. After more than 35 years, hydrodemolition remains the only impact-free mechanical method for removing concrete, which should make it the gold standard. We're not there yet but remain optimistic that the industry will achieve this defining moment.

REFERENCES

1. EWJI. (N.D.). "The background, history of the hydrodemolition development." European Water Jetting Institute (EWJI). https://www.ewji.org/information/guide-why-use-hydrodemolition/23027-2



Keith Armishaw is the business development manager for Aquajet's North American subsidiary. He has more than 25 years of industry and leadership experience. Aquajet, which was acquired by Brokk AB in 2016, is an industry leader in Hydrodemolition machines and solutions.



Fig. 5: Today's water treatment systems treat the wastewater resulting from Hydrodemolition by neutralizing pH and removing suspended solids so that it can be safely released back into the environment

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ADVANCES IN HYDRODEMOLITION WASTEWATER MANAGEMENT:

Leveraging Modern Technologies for Efficiency and Compliance

by Liz Meyer

Hydrodemolition, the high-pressure water method used to remove concrete, has long been an essential tool in construction and maintenance projects. However, the wastewater generated during the process—referred to as slurry—presents a significant challenge for contractors. This wastewater often contains suspended particles, with total suspended solids (TSS) levels reaching up to 15,000 ppm, and a pH level between 11 and 12.5, requiring comprehensive treatment solutions.¹ Managing hydrodemolition wastewater has evolved alongside advancements in technology, enabling contractors to meet stringent environmental regulations while improving jobsite efficiency.

OPTIMIZING COLLECTION AND CONTAINMENT

Effective wastewater management begins with proper collection and containment. On job sites such as parking garages and bridge decks, contractors take advantage of gravity-fed systems that channel wastewater to designated treatment areas. These natural slopes, combined with drainage configurations, facilitate the movement of wastewater to low points where larger solids can settle through filtration barriers, such as hay bales, aggregate dams, or filter cloths. Vacuum equipment has further enhanced this process, enabling direct water collection and reducing the need for manual intervention (Fig. 1).¹

MODERN TREATMENT SYSTEMS: ENHANCING TSS REMOVAL

Traditional wastewater treatment systems relied on retention basins or lined pits, such as Baker tanks, to allow natural settling of suspended solids. While effective, these systems were often cumbersome, occupying large portions of the job site and requiring significant time to achieve the desired TSS reduction. For example, gravity-based systems could take days to reduce TSS levels, delaying progress on the project.

Modern treatment systems, however, utilize chemical flocculants and coagulants to accelerate particle aggregation, significantly improving the speed and efficiency of solid removal. Innovations like tube settler technology further enhance this process, enabling TSS levels to be reduced to as low as 50 ppm.¹ (see Fig. 2) Automated machines now combine precise dosing of flocculants with automated mixing, enhancing solids separation. With tube clarifiers, these systems can achieve up to 99% removal of suspended particles, ensuring that treated water meets stringent discharge or reuse standards (Fig. 3).¹





Fig 1: Containment and collection of Hydrodemolition slurry with sandbags, containment walls, and vacuuming



Fig. 2: (above) Before and after treatment

ADVANCING AUTOMATION WITH TURBIDITY SENSORS AND FLASH MIXING TANKS

Recent advancements in turbidity sensor technology have elevated the precision of wastewater treatment systems. Turbidity sensors, strategically placed throughout the treatment process, provide real-time feedback on water clarity, enabling precise control over the dosing of flocculants and coagulants. Automated mixing systems, including flash mixing tanks, further optimize chemical dosing based on turbidity readings. This dual-tank system ensures that coagulation and flocculation are efficiently performed, adjusting chemical dosing in response to ongoing monitoring, thus reducing excess chemical use (Fig. 4).¹

Additionally, to enhance mixing and chemical reactions, a hose pump recirculates solids back to the first flash mixing tank. This process ensures more consistent treatment and maximizes TSS removal, improving the quality of the discharge or reuse water.

REDUCING SYSTEM FOOTPRINT: FROM LARGE TANKS TO MOBILE SOLUTIONS

Historically, managing hydrodemolition wastewater involved large retention basins, such as Baker tanks, which consumed valuable space on job sites. These systems required significant real estate,

Fig. 3: (below) Water leaving clarifier section of treatment system



often resulting in logistical challenges. However, recent advancements in mobile, compact systems have transformed wastewater treatment in hydrodemolition. Mobile trailer systems and containerized treatment units have dramatically reduced the space requirements for wastewater treatment while maintaining high efficiency.

These modern systems integrate coagulation, flocculation, solid separation, and pH neutralization into one compact, mobile unit. Capable of processing up to 120 gallons per minute (454 lt/m), these systems provide contractors with flexibility and efficiency, especially when space is limited or when job sites require rapid setup and teardown. Mobile systems are designed for easy transportation between job sites, eliminating the need for large, stationary tanks and minimizing the time spent setting up treatment systems.

PRECISION PH NEUTRALIZATION THROUGH AUTOMATION

One of the most critical stages in wastewater treatment is pH neutralization. Hydrodemolition slurry water often has a high pH due to the alkalis present in the concrete. To meet regulatory discharge standards, contractors must lower the pH to acceptable levels (typically below 10). Traditional methods involve manually adding acids or carbon dioxide, but modern automated systems provide a more reliable solution.

Automated pH control systems now incorporate inline pH monitoring and chemical or CO_2 gas injection to maintain a neutral pH range (6 to 9) (Fig. 5). These systems continuously adjust the chemical dosing in real-time, ensuring that wastewater can be safely discharged or reused, minimizing human error, and reducing the need for skilled operators on-site.¹

INTEGRATED SOLUTIONS: ADDRESSING ENVIRONMENTAL AND OPERATIONAL CHALLENGES

The shift toward fully integrated wastewater treatment systems represents a major leap forward in hydrodemolition practices. These systems combine multiple treatment stages into one compact unit, offering significant advantages in terms of space conservation and reduced logistical complexity. In addition to reducing the footprint of treatment systems, integrated solutions can process up to 120 gallons per minute (454 lt/m) of water, providing clear, reusable water suitable for hydrodemolition equipment. This reduces the need for fresh water, alleviating environmental impacts, and lowering water transportation costs.¹

With a growing emphasis on environmental sustainability, integrated systems also support contractors in meeting stringent regulatory requirements by offering automated data logging features. These systems continuously monitor water quality parameters—such as TSS levels, pH, and turbidity—and log the data for compliance reporting (Fig. 6). By simplifying regulatory documentation, these systems allow contractors to focus on efficient treatment and project timelines, without worrying about compliance challenges.¹

ECONOMIC AND ENVIRONMENTAL BENEFITS

The benefits of modern wastewater treatment systems extend beyond compliance and efficiency. By reducing the labor time required for water treatment by up to 90%, contractors can achieve significant cost savings. Moreover, the ability to recycle treated



Fig. 4: Slurry water flowing into treatment unit



Fig. 5: Automated pH control system



Fig. 6: Record of turbidity metered levels and $\ensuremath{\mathsf{pH}}$ levels for compliant discharge reporting

water onsite significantly reduces the need for fresh water, promoting sustainability and lowering water transportation expenses. These systems not only contribute to a more efficient workflow, but also help minimize delays and ensure that projects remain on track.¹

CONCLUSION

Recent advancements in hydrodemolition wastewater management have transformed the landscape of concrete removal and treatment. By leveraging automated, integrated systems that streamline the treatment process, contractors can enhance their ability to meet stringent environmental regulations while increasing jobsite efficiency. These innovations—ranging from automated turbidity sensors and flash mixing tanks to compact, mobile treatment units—represent a new era of wastewater management. The integration of advanced technologies in solids removal, pH neutralization, water recycling, and data logging not only enhances operational productivity but also fosters greater sustainability, marking a significant step forward in the concrete repair industry.

REFERENCES

1. ICRI 310.3R-2014, "Guide for the Preparation of Concrete Surfaces for Repair Using Hydrodemolition Methods," International Concrete Repair Institute, Minneapolis, MN, 2014 pp 28.



Liz Meyer is a sales representative at Full Circle Water, specializing in industrial water recycling and slurry management solutions. Full Circle Water is based in Minnesota, with over 1,500 installations of water equipment throughout North America. With a deep understanding of water treatment technologies, she helps businesses in concrete repair and hydrodemolition optimize their water use while maintaining environmental compliance.





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REHABILITATION OF THE EAST SIDE TUNNEL, PROVIDENCE, RHODE ISLAND: Hydrodemolition on Deteriorating Gunite

by Sarah McLellan

PROJECT OVERVIEW

The East Side Transit Tunnel in Providence, Rhode Island, was built in 1914 as an additional trolley route in the city, featuring a more gradual graded incline for trolley cars to take up College Hill.¹ Currently, the tunnel is used exclusively for bus traffic and emergency services. The barrel vault section of the tunnel stretches approximately 1700 feet (518 m) long, with gunite from the 1990s throughout the entire length. The concrete liner on the tunnel is original concrete from 1914.²

In spring 2023, it was discovered that the gunite and underlying concrete were deteriorating. In some sections of the tunnel, the gunite was failing due to quality, sandy composition, and age, whereas in other sections, the underlying concrete was weakening due to a smooth aggregate with sandy material.² This resulted in an inadequate bond with the gunite. In some places, the gunite was sound, but it was either not bonded to the concrete liner or the concrete liner itself was deteriorating.

Investigations concluded that the gunite and concrete on the tunnel side walls and tunnel arch needed rehabilitation. All gunite needed to be removed from springline to springline, as well as some deteriorated patches on the tunnel side walls. The viability of single-lane closures was discussed to allow tunnel usage during rehabilitation, but it was eventually decided that closing both tunnel lanes was necessary, resulting in a full closure. This required a tight schedule, with different trades needing to work concurrently to be as efficient as possible to limit the duration of the closure.²

CONSIDERATIONS FOR HYDRODEMOLITION

Hydrodemolition does not cause vibration to the structure, and it also does not leave cracks or microfractures in the surrounding area.^{3,4} Because no damage was done to the sound gunite, only the necessary repairs needed to be made.⁵

The project required peak efficiency, with little room for setbacks or delays. Hydrodemolition is generally faster and more efficient than hand chipping, especially with overhead work. Since 100% of the gunite on the tunnel arches had to be removed, hydrodemolition presented an efficient and effective option. A hydrodemolition robot with a vertical tower was crucial to the task, as well as operators experienced in overhead work. Additionally, by using hydrodemolition, operators were able to adjust the pressure and the speed of the demo head to remove the required material to meet the project specifications.



Fig. 1: Using a robot with vertical capabilities on the tunnel arch



Fig. 2: First pass over the tunnel arch with the robot



Fig. 3: Finished tunnel arch product with the robot before transitioning to the side walls

Because the key component of hydrodemolition is water, silica dust is not a concern. When using conventional demolition methods, exposure to silica dust, which can cause silicosis, is a concern. Because hydrodemolition leaves surfaces and tools wet, it minimizes the chance of inhaling silica dust.³⁴ This was especially beneficial for this project—where not only was it an enclosed space, but different trades were working on different areas of the tunnel simultaneously, with no cause for concern about silica dust exposure.³⁴

PROCESS

Due to logistics, only certain pieces of hydrodemolition equipment could be staged within the tunnel. The robot, as the essential piece, was staged inside, but the water pump and the water treatment system were staged at the tunnel portals.

The crew began with the tunnel arch. By using a robot with a vertical tower at 17,000 psi and 75 GPM (1172 bar and 284 LPM), operators were able to successfully remove the required gunite (Fig. 1, 2).

After completing the tunnel arch demolition (Fig. 3), the crew shifted focus to the side walls. Operators began the side wall demolition with the robot; however, in some areas, the gunite was stronger than the concrete liner. Using the robot proved to be too aggressive. Operators then used hand lances to surgically remove the remaining patches without removing the concrete liner (Fig. 4).

The slurry, the combination of hydrodemolition water (HDW) and the cement matrix, was pumped to the treatment system. To dispose of the HDW back into the environment, the crew sent the water through the treatment system at a rate of 75 GPM (284 LPM). By using CO_2 , the treatment system can neutralize the pH. A series of baffles in addition to flocculant and coagulant reduced total suspended solids (TSS), making the HDW safe to discharge back into the city sanitary system. The filtered HDW was tested regularly and was deemed safe to discharge (Fig. 5).

CHALLENGES

All the tunnel arch gunite needed to be removed, but only certain areas of gunite on the side walls needed to be removed. The concrete liner was the original concrete from 1914, making it over 110 years old at the time of demolition. In some areas on the sidewalls, the significantly newer gunite was stronger than the underlying concrete. When the robot demoed some stronger gunite, it also hit the underlying concrete. This necessitated a switch to the hand lances for the sidewall patch demolition.

By using 34,000 psi and 5 GPM (2344 bar and 19 LPM), operators were able to remove the gunite patches without damaging the concrete liner (Fig. 6). By using hand lances, operators were able to achieve a more consistent product on the tunnel sidewalls (Fig. 6). Using hand lances also sped up the process, allowing the operators to adhere to the master schedule despite previous challenges.



Fig. 4: Using hand lances to remove the gunite patches for a cleaner cut

Another challenge was water collection and the water treatment process. Because logistics did not allow for the treatment system to be staged inside, the HDW needed to be pumped out of the tunnel and to the system. A unique aspect of this project was the slope of the tunnel. The crew was able to use this to their advantage to establish a sump area.

While working on the upper half of the tunnel, the HDW flowed into a catch dam, where it was then pumped back up to the treatment system. Once the operators got to the halfway point of the tunnel, the treatment system was moved to the lower tunnel portal.

To account for a faster flow of water, operators built temporary weirs along the slope out of sandbags and plywood (Fig. 7). The weirs not only slowed the flow of the HDW, but they also acted as an initial treatment system to reduce TSS, as the HDW would pool at each weir, and the TSS would settle due to gravity.

RESULTS

The hydrodemolition began in late April 2024 and was completed by the middle of June. Any remaining gunite was inspected and found to be sound.

The East Side Transit Tunnel ultimately required 67,386 square feet (6,260 m²) of demolition along the side walls and arch. The hydrodemolition portion of the project cost about \$1.7 million, with the overall rehabilitation of the tunnel costing about \$25 million. The tunnel closed to traffic on March 25, 2024, and reopened on October 31, 2024.¹

By using hydrodemolition, the demolition process was efficient, targeted, and with minimal environmental risk.



Fig. 5: The water treatment system was staged outside the tunnel



Fig. 6: Result of using the hand lance at 34,000 psi (2344 bar)

REFERENCES

1. "East Side Tunnel Projects," Rhode Island Public Transit Authority, accessed February 11, 2025, https://www.ripta.com/tunnel/

2. "East Side Tunnel Rehabilitation: Tunnel Lining Demolition and Lane Closure Investigation." WSP USA Inc, Boston, MA, 2022, pp. 3-29.

3. "Rhode Island Public Transit Authority: Request for Proposals Number 23-24: Addendum 2." WSP, July 19, 2023.

4. Nittinger, Bon, "Concrete Surface Preparation Using Hydrodemolition." *Concrete Repair Bulletin*, January 2001, 6-7pp. https://www.icri.org/wp-content/uploads/2024/04/CRBJanFeb01_Nittinger.pdf

5. ACI Committee E706, ACI RAP 14, Concrete Removal Using Hydrodemolition, American Concrete Institute, Farmington Mills, MI, 2013.

6. ICRI Guideline No. 310.3R-2014, Guide for the Preparation of Concrete Surfaces for Repair Using Hydrodemolition Methods, International Concrete Repair Institute, Minneapolis, MN, 2014, 1-7 pp.



Sarah McLellan is the marketing coordinator and a handlance operator at AK Industrial Services, LLC. She has a bachelor's degree in English and is working on a master's degree. AKIS was founded in 1992 and has over 35 years of experience with hydrodemolition and industrial services. Organizational memberships include ICRI, WJTA, New Hampshire Good Roads, Maine Better Transportation Association, National Institute for Storage Tank

Management, ACI, and the SWR Institute.

Fig. 7: A series of baffles and weirs were used to slow the flow of HDW

PROJECT NAME | **RIPTA TUNNEL** *Providence, Rhode Island*

OWNER | RHODE ISLAND PUBLIC TRANSIT AUTHORITY Providence, Rhode Island

ENGINEER | **WSP USA INC.** *Boston, Massachusetts + Providence, Rhode Island*

CONTRACTOR | **BENTLEY BUILDERS, LLC** *Warwick, Rhode Island*

HYDRODEMOLITION CONTRACTOR | **AK INDUSTRIAL SERVICES, LLC** *Everett, Massachusetts*

EQUIPMENT SUPPLIER | **AQUAJET** Holsbybrunn, Sweden

EQUIPMENT SUPPLIER | **HAMMELMANN GMBH** *Oelde, Germany*

EQUIPMENT SUPPLIER | **JETSTREAM** *Houston, Texas*



Army Corps of Engineers Locks #27 Restoration

by Andy Anderson and Curt Costello

INTRODUCTION

Concrete hydrodemolition is an innovative technique that has gained traction in recent years, especially in large-scale infrastructure projects like those undertaken by the U.S. Army Corps of Engineers (USACE). This method utilizes high-pressure water to remove deteriorated or damaged concrete while preserving the underlying structure. The recent rehabilitation of Locks #27 explores the advantages, applications, and implications of hydrodemolition in the context of an USACE lock and dam restoration or rehabilitation project (Fig. 1).

UNDERSTANDING THE ADVANTAGES OF HYDRODEMOLITION

Hydrodemolition employs highly pressurized water [often up to 20,000 psi (1380 bar)] to effectively demo concrete surfaces. The process is not only efficient, leading to shorter disruption to a client's operation, but also minimizes damage to the surrounding substrate material—making it a preferred choice for repair, restoration, or rehabilitation projects. By selectively targeting and removing only the specified areas, hydrodemolition reduces the need for extensive repairs due to micro-fracturing or full structural replacements. Hydrodemolition can be achieved by using manual hand lances for small applications—or, for larger and more complex projects, hydrodemolition robots.



Fig. 1: Overview Locks #27 during hydrodemolition





Fig. 2: Mobile hydrodemolition lance unit mounted to a remote frame



Fig. 3a: Installation and positioning of hydrodemolition equipment



Fig. 3b: Installation and positioning of hydrodemolition equipment

APPLICATIONS FOR LOCK AND DAM PROJECTS

Lock and dam projects are critical for maintaining navigable waterways and managing water levels. Over time, these structures may suffer from wear and tear due to environmental factors, erosion, and heavy usage. Traditional concrete removal methods (such as jackhammering, mechanical demolition, or blasting) can cause significant damage to the remaining infrastructure and are much less efficient than automated hydrodemolition for selective demolition. Hydrodemolition addresses this issue with precision and efficiency.

LOCKS 27 EMBEDDED METALS REPAIRS

The Chain of Rocks Lock and Dam, also known as Locks #27, is part of an 8-mile (12.9 km) canal section known as the Chain of Rocks Canal located southeast of the Mississippi River just south of St. Louis, Missouri. The canal and the lock were constructed in the late 1940s and early 1950s as part of the larger plan to improve navigation on the Mississippi River, in part to bypass a renowned treacherous navigation section referred to as the "Chain of Rocks." The USACE aimed to streamline commercial shipping operations while also trying to reduce the risk of flooding. Since being commissioned, Locks #27 has been operating continuously except for temporary shutdowns for repairs and maintenance.

Engineering features of Locks #27 include a lock chamber, spillway, and a dam that regulates water levels on the river. More freight passes through Locks #27 than any other USACE asset on the Mississippi River—making it vitally important to the U.S. economy.

The Project Team was contracted to perform selective hydrodemolition for an embedded metals lift gate repair project on USACE Locks #27. Hydrodemolition was the specified method for concrete demolition by the USACE. Among other work activities that were to be completed during the scheduled 90-day shutdown period, a total of 4 vertical embedded gate sections encased in concrete [totaling over 1,000 sq. ft. (93 m²) of surface area] reaching

heights of 90 ft. (27.4 m) from the Locks base slab were subject to a minimum concrete demolition depth of 18 in. (.45 m). To achieve the means of positioning the high-pressure hydrodemolition equipment to reach the removal areas while also achieving the necessary removal depth, the Project Team utilized the latest advancements in hydrodemolition accessories. A mobile lance unit mounted to a frame enabled the Project Team to utilize the benefits of automated concrete removal typically achieved through only a robot, by connecting the robot to the mobile lance unit (Fig. 2). The frame was mechanically fastened to the vertical surface to secure it during the removal process and moved manually with field personnel and a crane progressing the demolition work vertically up/down (Fig. 3a & 3b). Ceramic nozzles were also used on the mobile lance unit. The benefits of the ceramic nozzle were exemplified on this project as ceramic lance nozzle technology improves the effective high pressure conical stream. By increasing the conical stream, you create a more targeted high-pressure impact to the concrete, which ultimately reduces the number of passes needed to remove various depths of concrete. Ceramic nozzles have also proved to be more resilient to degradation from high-pressure water, thus reducing the amount of down time to replace the nozzle and tips. In total, the concrete hydrodemolition work was completed in 41 high-pressure hours. With the concrete removals completed, the Project Team was able to continue work on the concrete and embedded steel repairs.

The primary contributing factors that make hydrodemolition the preferred concrete demolition process for this project and other Locks and Spillways by the USACE are:

- Minimize Structural Damage: The high-pressure water jets selectively remove sound and unsound concrete without adversely affecting the sounding substrate materials. The pressure and flow are powerful enough to ensure effective concrete removal while also not damaging the underlying steel. The steel is in fact cleaned and preserved and, in most cases, there is no need to sandblast. Specific depths of horizontal, vertical, and overhead concrete demo can also be achieved by hydrodemolition, ranging from as little as 0.5 in. (13 mm) for total surface scarification, to more than 24 in. (0.6 m) in a single pass because of advancements made with automated robot controls and waterjet nozzle technology (Fig. 4a & 4b).
- Improve Safety: Positioning equipment rather than large field crews in hard-to-access work areas reduces the chances of workplace incidents and injuries (Fig. 5a & 5b). Reduced vibration compared to traditional methods provides a safer work environment for personnel and reduces disturbance to the surrounding ecosystem.
- Enhance Efficiency: Hydrodemolition can often complete removal tasks in a fraction of the time compared to other concrete demolition methods, allowing for quicker repairs and less downtime to facility operations.
- Facilitate Better Repairs: With the ability to remove only unsound concrete, engineers can specify a high-quality repair to restore the infrastructure's integrity more effectively versus demolition methods that can compromise or damage the underlying structure.



Fig. 4a: Vertical concrete removal with clean reinforcing steel



Fig. 4b: Vertical concrete removal with clean reinforcing steel



ENVIRONMENTAL CONSIDERATIONS

The USACE places a strong emphasis on environmental stewardship. Hydrodemolition supports this by minimizing waste, as the process naturally generates smaller debris matter than traditional methods, making disposal easier for second-use applications that are more environmentally friendly than typical waste site disposal. Hydrodemolition also reduces silica dust exposure and noise pollution as compared to mechanical demolition or jack hammering. Moreover, hydrodemolition methods can be combined with containment and treatment measures to prevent debris from entering surrounding waterways.

CONCLUSION

Concrete hydrodemolition represents a significant advancement in the field of civil engineering, particularly for projects undertaken by the USACE. By adopting this innovative technique, engineers can prolong the lifespan of structures and enhance the safety, efficiency, and sustainability of lock and dam rehabilitation projects. As the USACE continues to prioritize the integrity and longevity of vital infrastructure, hydrodemolition is likely to play an increasingly prominent role in their operations, paving the way for a more resilient future in waterway management.

Fig. 5a: Remote operation of robotic hydrodemolition equipment

Fig. 5b: Remote operation of robotic hydrodemolition equipment





Curt Costello has spent his entire professional career of over 20 years in the self-perform concrete industry, with a primary focus on concrete restoration, repairs, and rehabilitation, and waterproofing for the past 15 years. Curt is the Vice-President of Restoration Services for Concrete Strategies, overseeing all things related to the concrete repair industry, waterproofing, and other specialty contracting services.



Andy Anderson has had a long career in Business Development across multiple industries and serves as National Accounts Manager overseeing all Sales and Marketing activities for Conjet in North America.

PROJECT NAME | LOCKS NO. 27 EMBEDDED METALS REPAIRS Granite City, Illinois, Lower Mississippi River

OWNER | U.S. ARMY CORPS OF ENGINEERS

CONTRACTOR | AHTNA DESIGN BUILD, INC Kansas City, Missouri

CONTRACTOR | J.F. BRENNAN La Crosse, Wisconsin

HYDRODEMOLITION CONTRACTOR | **CONCRETE STRATEGIES, LLC** *St. Louis, Missouri*

EQUIPMENT SUPPLIER | **CONJET, INC.** *Charlotte, North Carolina*



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CERTIFICATIONUPDATE

CSMT PROGRAM IN OKLAHOMA

ICRI's Concrete Slab Moisture Testing (CSMT) Program hosted a successful program at Mill Creek Carpet & Tile in Oklahoma City on March 19 & 20, 2025. The 14 course participants from various Mill Creek offices in Oklahoma and Missouri completed the certification process, including a demonstration and workshop, as well as performance exams.

A great big "thank you" goes out to lead instructor Peter Craig and ICRI's half-staff employee Mark LeMay, who helped set up the class and performance exams with Mr. Craig. It was a fully engaged class and everyone passed both the written and performance exams.

ICRI congratulates the Drilling Contest winners at this program— Roy Reece, Ryan Conyers, and Bob Smith—who all did an excellent job of hitting closest to the 2-inch mark.



The winners of the drilling contest that accompanies the testing for ASTM F2170 during the CSMT program are (left to right) Bob Smith (3rd place), Roy Reece (1st place), and Ryan Conyers (2nd place)

Interested in Hosting a CSMT Program?

Contact Matthew Carter at matthewc@icri.org with contact information, the proposed exam location, and potential date(s).



Larger flooring companies around the country, like Mill Creek Carpet & Tile in Oklahoma City, OK, bring engaged and interested technicians to the ICRI Moisture Testing Class



ICRI is fortunate enough to have the industry's most-recognized authority on Concrete Floor Moisture Testing, Peter Craig (seated right) as lead instructor

ICRI**CHAPTER**NEWS



"AS SOMEONE RELATIVELY NEW TO THE CONCRETE RESTORATION INDUSTRY, one of the very first things I did after starting my new job was join my local ICRI chapter. It immediately gave me access to best-in-class training."

- JEFF KONKLE, MAK CONSTRUCTION PRODUCTS GROUP

www.icri.org/chapters

CHAPTERS COMMITTEE CHAIR'S LETTER



We are all busy, especially during warmweather construction season! In a world filled with constant distractions and complexities, I believe we must get back to the basics. If ICRI's goal is to provide the best possible experience to members and non-members alike, I'd like to encourage all Chapter Leaders across the country to make a conscious effort to implement the guidelines set forth in the Chapter President's Guide. What comes across as a lengthy list can be broken down

Chapters Chair into a few strong commitments monthly:

- Check the monthly roster and update contacts, welcome new members, and check on and follow up with renewals.
- Complete event checklists and provide event information to ICRI headquarters to be shared on the website.
- Email chapter news items to ICRI headquarters so the newest information is shared.
- Update the calendar of events to have the most current information and share this information with ICRI headquarters.
- Update the chapter website and webpage so that all information about events and the chapter is current.
- Promote chapter events, national events, and ICRI certifications.

Each of our chapters plays a crucial part in the success of our organization, and commitment to these duties is a win for all. This ensures that all Board Members are working efficiently, effectively, and energetically toward ICRI common goals.

Thank you for your dedication and hard work towards making ICRI an amazing organization.

David Grandbois, ICRI Chapters Committee Chair Western Specialty Contractors – Minneapolis, MN

ICRI**CHAPTER**NEWS

CHAPTER EVENT HIGHLIGHTS

FLORIDA WEST COAST CLAYS TOURNAMENT

The 9th Annual Sporting Clays Tournament, a signature event organized by the Florida West Coast Chapter of ICRI, faced considerable challenges in 2024. Hurricanes Helene and Milton had a profound impact on the Tampa Bay region, disrupting the lives of nearly all participants in some capacity. Consequently, the tournament was postponed and rescheduled for January 2025, allowing the community valuable time to recover and regain a sense of normalcy after a particularly active hurricane season.

The eagerly awaited rescheduled event turned out to be a tremendous success. A large turnout of shooters, sponsors, and volunteers came together to make the day memorable and kick off 2025 on a high note. A special thank-you goes to the team at Tampa Bay Sporting Clays for their outstanding support and to The Brisket Shoppe for providing a delicious lunch that added to the day's enjoyment.



Mike Batz (right), Florida West Coast Chapter President, wins the Top Shooter Award, presented by Chapter Past President Vince Barnes

A day out at the shooting range can only be capped with a tournament trophy—congratulations to the winning team!





ICRI has 38 chapters, including two student chapters, in metropolitan areas around the world. Chapters hold technical presentations, educational meetings, symposia, and local conventions on repair-related topics.

ICRI**CHAPTER**NEWS

CHAPTER CALENDAR

ICRI Chapters are hosting events in 2025. Be sure to check with individual chapters by visiting their chapter pages to determine if they have made any plans after this publication went to print. You can also contact a Chapter Leader from any chapter to ask if they have added an event.

BALTIMORE-WASHINGTON

June 5, 2025 SPRING SKEET SHOOTING EVENT PG County Trap and Skeet Center Glenn Dale, MD

CAROLINAS

May 15 & 16, 2025 CHAPTER SPRING CONFERENCE Hotel Indigo Mount Pleasant, SC

CHICAGO

May 22, 2025 PROJECT AWARDS DINNER Gibson's Oak Brook Oak Brook, IL

CINCINNATI

May 21, 2025 SPORTING CLAYS EVENT Middletown Sportsman Club Middletown, OH

July 16, 2025 SUMMER SOCIAL Madtree's Oakley Taproom Cincinnati, OH

DELAWARE VALLEY

May 16, 2025 SPORTING CLAYS EVENT Lehigh Valley Sporting Clays Coplay, PA

July 16, 2025 TOP GOLF SOCIAL OUTING Top Golf Facility Mount Laurel, NJ

FLORIDA WEST COAST

June 11, 2025 CHAPTER SOCIAL OUTING Cathedral Cigars Tampa, FL

GEORGIA

May 19, 2025 SPRING GOLF TOURNAMENT Supporting GA Scholarship Program Heritage Golf Links Tucker, GA

GREAT PLAINS

May 14, 2025 MATCHDAY DERBY St. Louis City SC vs. Sporting KC Energizer Park St. Louis, MO

May 15, 2025 CHAPTER DEMO DAY Concrete Strategies Innovation & Training Center Hazelwood, MO

HOUSTON

May 30, 2025 JOINT ICRI/ACI CLAY SHOOT Westside Sporting Grounds Kay, TX

INDIANA

June 24, 2025 PARTNERED PRESENTATION with Building Enclosure Council (BEC) Topic: Managing Project-Specific Details Speaker: Chris Tobias from Prosoco American Structure Point - Grandview Conference Room Indianapolis, IN

MINNESOTA

May 8, 2025 SPRING TECHNICAL SESSION Topic: Champlain Towers Collapse Analysis 605 Waterford Park Plymouth, MN

June 12, 2025 ANNUAL BAGS TOURNAMENT Forgotten Star Brewery Fridley, MN

July 15, 2025 ANNUAL GOLF TOURNAMENT Bunker Hills Golf Course Coon Rapids, MN

NEW ENGLAND

June 10, 2025 ANNUAL GOLF EVENT Red Tail Golf Club Devens, MA

NORTH TEXAS

May 9, 2025 SPORTING CLAY CLASSIC Elm Fork Shooting Sports Dallas, TX

OKLAHOMA

May 29, 2025 CHAPTER SOCIAL EVENT Dust Bowl Tulsa, OK

PITTSBURGH

May 13, 2025 CHAPTER TECHNICAL EVENT Topic: Precast Double Tee Connection Failures Speaker: Lawrence Keenan 11 Stanwix Building Pittsburgh. PA

June 13, 2025 ANNUAL GOLF OUTING Birdsfoot Golf Course Freeport, PA

ROCKY MOUNTAIN

May 22, 2025 CHAPTER CLAY SHOOT Kiowa Creek Sporting Club Bennett, CO

July 21, 2025 CHAPTER GOLF TOURNAMENT Hiwan Golf Club Evergreen, CO

VIRGINIA

May 8, 2025 SPRING GOLF OUTING The Club at Viniterra Golf Course New Kent, VA

INDUSTRYNEWS

CORTEC MCI UNVEILS UPDATED BRANDING FOR A MORE VERSATILE AND MODERN IDENTITY

Cortec[®] is excited to announce a refreshed brand identity for its MCI[®] (Migrating Corrosion Inhibitor[™]) product line, modernizing its visual presentation while maintaining the core elements that have made MCI[®] a trusted name in corrosion protection for over 30 years. At its core, the MCI[®] brand remains committed to its mission: extending the service life of concrete structures while offering an environmentally responsible alternative to traditional corrosion inhibitors. The familiar "From Grey to Green[™]"</sup> tagline continues to represent MCI's dual impact—protecting infrastructure from deterioration and doing so in a way that minimizes environmental hazards compared to competing solutions.

For more information, visit cortecmci.com

FORTRESS REGRID WINS NEW PRODUCT AWARD AT UK CONCRETE SHOW

In an effort to increase their global footprint, Fortress Stabilization Systems of Holland, Michigan partnered with London based Structural Repairs in 2024. Structural Repairs initiated an extensive testing process of the Fortress ReGrid technology, gaining approval for use in the UK. From there, they launched Fortress Stabilisation Europe and were able to secure contracts for multiple commercial and infrastructure products, including the UK Network Rail.

To learn more about Fortress, visit <u>fortressforlife.com</u> To learn more about Structural Repairs, visit <u>structuralrepairs.com</u>



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