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W J T A
WaterJet Technology
Association



Jet News

OCTOBER 2001

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for the benefit of its
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September 11, 2001, The World Trade Center, New York City

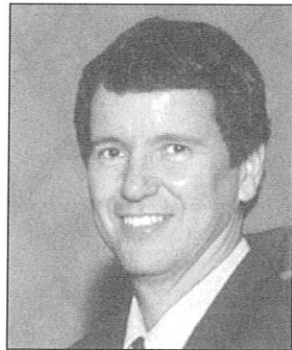
We Weep



The 47-story Building 7 of the World Trade Center complex collapsed at 5:20 p.m. EDT September 11, nearly seven hours after the final tower collapsed (NEW YORK CITY OFFICE OF EMERGENCY MANAGEMENT).

Richard Ward Receives 2001 WJTA Technology Award

Following is the text of the acceptance speech that was to be given at the award ceremony in Minneapolis, MN, on August 20, 2001, by Richard Ward, recipient of the Technology Award.



Richard Ward

Ladies and Gentlemen,

It is with gratitude and awe that I accept the Technology Award presented to me tonight.

Looking back I cannot help but be amazed at the limitless opportunities in the United States that constantly present themselves to anyone who is prepared to focus, innovate and work hard.

Having spent the first 34 years of my life in Africa, growing up in the small town of Bulawayo, Zimbabwe, the change from chasing baboons, dodging snakes, crocodiles and elephants and running out to watch the weekly flight to Johannesburg in South Africa fly overhead, to navigating traffic in downtown New York and sleeping on the floor in Chicago's airport due to 'air traffic control' is sometimes overwhelming.

In Bulawayo, if you needed something, you typically had to make it. The first go-cart I built at 12 years old needed a centrifugal clutch, which left me no option but to convert a brake drum into a clutch, making by hand the gears and heat treating them with a cutting torch and a bucket of old engine oil.

So it was no surprise in 1991, when I arrived in the States with my family (with only a suitcase and a pillow each) that my favorite bedtime reading matter was a Grainger catalogue. My mind could scarcely take it in. All this stuff... and you could order it and have it the next day! It was mind blowing!

The last 10 years in the United States have taught me a lot about opportunity, persistence, character, people - fantastic people who can be trusted and who work hard, and freedom. Freedom from 7-foot high fences and gates and guard dogs and security alarms, and car hijackings. Freedom from countless government

imposed restrictions on everything from a 'holiday allowance' of about \$50 per person per year to leave the country, to government selected individuals to be your imposed workers committee.

Freedom to get up every day and go to work and to play and to relax and to travel.

Freedom to be who you want to be.

And for this freedom, I cannot express my gratification in words.

Then on January 19, 2001, my family was honored to become American citizens. The honor of being accepted and allowed to stay and live in the United States, and have the immigration officer at the border say 'welcome home' is something that is probably taken for granted by most, but not by me.

To say life has been easy over the last 10 years would not be true. But to say that I have thrived on the challenge of learning all about waterjet cutting, abrasive recycling and doing

business in general in the States has been more than a dream come true.

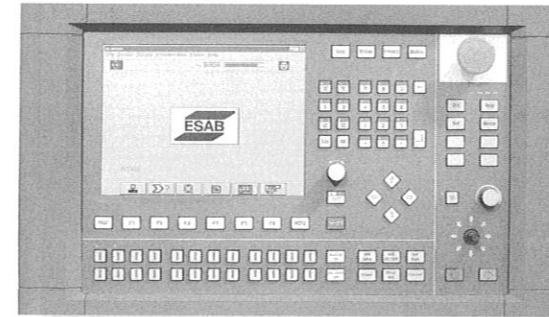
So it is with absolute honesty that I can say that I am overwhelmed that the work I have loved for so many years has been honored with the presentation of the Technology Award.

Truly, 2001 will be a year that I will never forget, becoming an American Citizen and receiving this award. So thank you again for this honor.

...I do just have one more question: If my parents, myself and 2 of my 3 children were born in Africa, and I have been living in the United States for 10 years and am now an American Citizen ... I just wanted to ask — does that make me an African American?

Thank you.

Submitted by Richard Ward

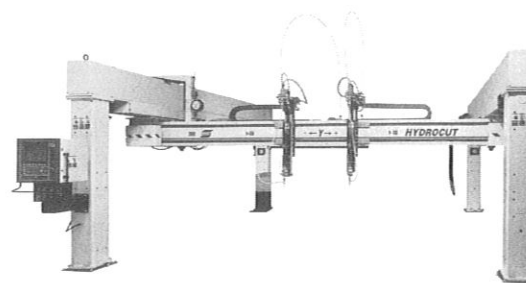
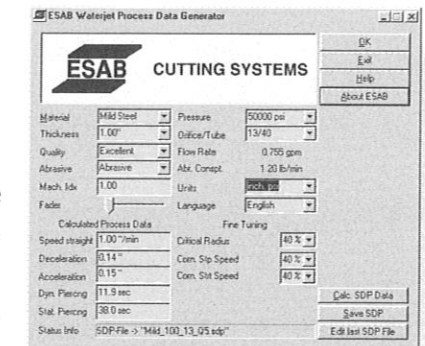


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Rugged gantry design and AC brushless digital motors on ESAB's HydroCut provide precise motion control and positioning accuracy.

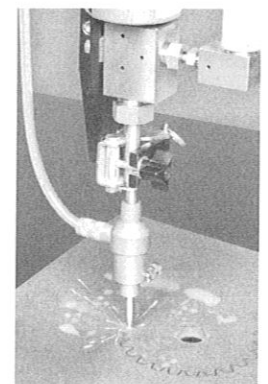
ergonomic operator's panel. A 333 mHz processor and advanced features such as multi-level return, zoom while running, and program continue after power failure further add to the power of this control.

ESAB's exclusive Process Parameter Programming features the unique **Data Generator Program** that automatically optimizes cutting

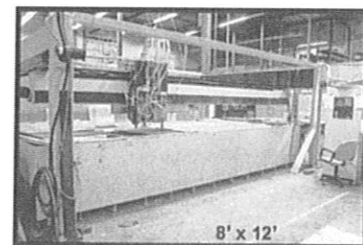
speed and cornering based on material type, thickness and desired cut quality. These settings are saved as a file that can be recalled at will, greatly reducing set-up time on repeat runs. Kerf, speed, dynamic axial pierce times, corner deceleration and corner acceleration are all set automatically.

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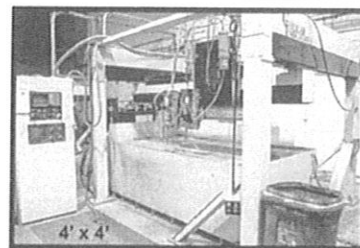


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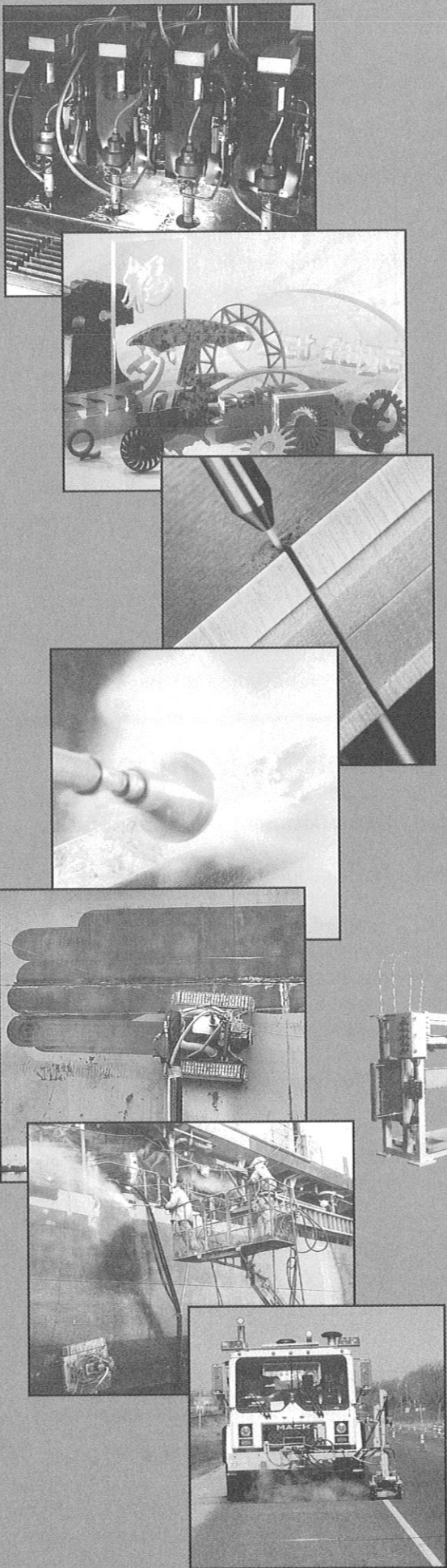
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George A. Savanick, Ph.D., Receives Pioneer Award

Following is the text of the acceptance speech given at the awards ceremony in Minneapolis, MN on August 20, 2001, by Dr. George A. Savanick, recipient of the WJTA Pioneer Award.

"Ladies and Gentlemen:

I accept with pride your Pioneer Award. It is a great honor to be added to the list of distinguished Pioneer Award winners, some of which are with us this evening: Dr. Fun-Den Wang of the Colorado School of Mines who can properly be called the father of the WaterJet Technology Association. It was his idea to create the association, and he hosted the meeting at which the association was organized at the Colorado School of Mines in 1981; Dr. David Summers, Curators' Distinguished Professor of Mining Engineering at the University of Missouri-Rolla and head of the water jet technology laboratory there. In my opinion, Dr. Summers is the preeminent waterjet researcher in the world. He is the person that I ask for advice when I need help with a waterjet problem; George Rankin, president of Aqua-Dyne of Houston, Texas. Mr. Rankin is a fine engineer and entrepreneur known for designing and producing pumps. Mr. Rankin is also a hero to me because I am a former cross country runner, and George was a two-time NCAA cross country champion when he attended the University of Houston in the late 1950s; Dr. Mohamed Hashish of Flow International Corp., Kent, Washington. Mohamed is a world-renowned expert in the theory and application of abrasive jets; Dr. John Olsen of Omax Corporation. John is an acclaimed expert in pump design. He was one of the founders



George A. Savanick, Ph.D.

of Flow Research in the early 1970s.

There is one former Pioneer Award winner who is not here tonight but whose presence I feel -- Jacob Frank, our first Pioneer Award winner. Jake died a couple of years ago. He introduced me to

waterjet technology and helped me to get started doing waterjet research here in Minneapolis at the Twin Cities Research Center of the U.S. Bureau of Mines. Jake was my mentor. All through my career, I tried to follow his advice that I do research that will result in a practical product in a reasonable time. He also advised that I should spend my time on important things and "don't sweat the small things." Since I began my career working as a subordinate to a winner of the Pioneer Award, you might call me the first of the Sons of the Pioneers.

I had a long and satisfying career at the Twin Cities Research Center conducting research in waterjets

(continued on page 8)

WJTAListServ Now Available To Members

Take advantage of prompt e-mail interaction with your colleagues!

WJTAListServ is an e-mail broadcast system developed by the WaterJet Technology Association (WJTA). WJTAListServ is designed to help you communicate and network with other WJTA members.

How does WJTAListServ work?

Forward your question, comment or request via e-mail to WJTAListServ. Your e-mail will be forwarded to other WJTAListServ participants who then

have an opportunity to respond. Every one on the WJTAListServ receives the questions, comments and/or requests made by other participants. You are not required to submit questions and/or comments in order to participate in the WJTAListServ. WJTAListServ is a benefit of WJTA membership and is FREE to members in good standing.

To participate in WJTAListServ, simply fill in the information requested below and return to the WJTA office.

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Member News, from page 24

Heavy Duty Hydro-blasting, Inc. has been a leader in the hydro-blasting water-jetting industry in Florida since 1973. Their wide range of extensive experience in the industrial cleaning market combined with P.C.S.' extensive experience in the surface preparation business is certain to be a winning combination. With over 30 full-time employees and well over \$1,000,000 of water-blasting horsepower equipment, Heavy Duty Hydro-blasting, Inc. led the industry in the 70s and 80s, performing all aspects of power generation plant maintenance, nuclear plant maintenance, shutdowns, and surface preparation projects. Heavy Duty Hydro-blasting, Inc. also led the industry in the introduction of ultra high pressure water-jetting at 40,000 PSI in the late 1970s. P.C.S. Inc., established in 1983, has a large fleet of 40,000 PSI water-blasters and extensive experience in the surface preparation industry. From elevated water tanks, ships, barges, road and runway markings, to parking deck membranes and lead abatement, P.C.S. Inc. has truly become a leader in the industry.

P.C.S. Inc. is also proud to be only the second Florida-based company offering hydro-demolition services (removal of concrete with high pressure water) on a national basis. P.C.S. Inc. is committed to continuing its legacy of utilizing cutting-edge technology to continually improve our history of great service to our clientele. We owe a huge thank you to our customers and to our employees who have made us a success so far.

For more information, contact Todd Holden, VP of Sales/Marketing, P.O. Box 959, Hobe Sound, Florida 33475, Florida phone: (561)223-7393, Tennessee phone: (865)448-9598, fax: (561)223-5461 or web site: www.pcshydro.com.

Paprima Opens New Location In Canada

Roman Caspar, president of Paprima Industries, has announced the opening of a new 55,000 square foot building to house Paprima's sales, engineering, research and development, and manufacturing facilities. The new Paprima facility is located at 75

Guthrie, Dorval (Montreal), Quebec, Canada, H9P 2P1, phone: (514)422-9555, fax: (514)422-9777.

RICHEL, Inc. And WARDJet, Inc. Move To New Facility In Ohio

RICHEL and WARDJet have moved to a new facility in Kent, Ohio.

"We simply outgrew our facility and ran out of room to breathe," says Richard Ward, CEO of both companies. "What is frightening is that the new facility that looked so big when empty, is already full of machines."

But the companies should not be short of space for long. With the secured option for all the adjacent land in the industrial development, Ward intends to break ground on a 30,000 square foot facility in 2002.

Having started RICHEL, Inc. six years ago in his basement with \$7000 gained from selling his car, Ward has developed the company into the largest reseller of used waterjets in the world. RICHEL, Inc. started out as a waterjet consulting company, taking Richard Ward to over 200 job shops in the USA alone and also to 34 countries.

"With the consulting, I became so frustrated with all the different software packages, controllers, abrasive feed systems and lack of cutting fixture design that it was obvious that these were all areas that needed to be addressed," says Ward. Based on his findings, Ward proceeded to design, test and build a host of accessories for the waterjet industry.

WARDJet, Inc. was established in 1999 (formerly EasiJet, Inc.) The most notable development of all is the WARD, or Waterjet Abrasive Recycling Dispenser, a system that in three minutes will remove, wash, sort and dry only the good reusable abrasive, contributing to a huge reduction in operating costs. With 44 units in operation in the USA, Canada, Brazil and Europe (as of August 2001), the WARD looks set to continue its strong growth.

For more information, contact: RICHEL, Inc., e-mail: richel@richel.com, web: www.richel.com, www.usedwaterjets.com or WARDJET, Inc., e-mail: sales@wardjet.com, web: www.wardjet.com. Address: 4485 Crystal Parkway, Suite 100, Kent, OH 44240, USA, Phone: 330-677-9100, Fax: 330-677-9121.

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Member News

AccuStream, a New Company
Offering Waterjet Parts and
Products

On September 1, 2001, AccuStream, Inc. was spun-off from Fedtech, Inc., to exclusively offer waterjet products to users of abrasive and waterjet cutting equipment. Fedtech will continue to be a leading supplier of waterjet and laser cutting services.

The company began marketing a limited product line of waterjet products in 1999. Due to the demand and popularity of these products, AccuStream now offers a broad range of replacement parts for all major pump manufacturers. Other products offered include waterjet bricks, cutting heads, abrasive delivery, and on/off valves as well as abrasive clean-outs and waterjet tanks.

AccuStream has a proven background offering quality reliable waterjet products that are affordable. Our waterjet engineering expertise and on-site testing capability gives us the ability to produce parts that significantly reduce operating expenses without sacrificing performance. AccuStream is the leading provider of quality after-market waterjet products.

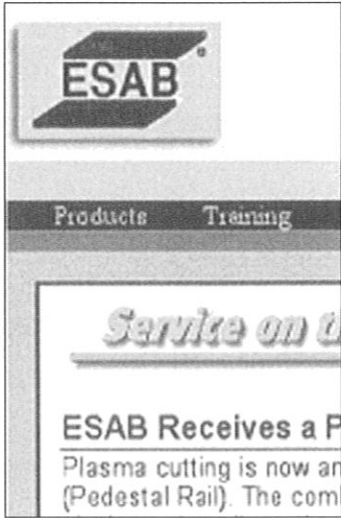
For more information visit accustream.com, email at info@accustream.com, phone: 763-717-7099, fax: 763-717-7097 or write: AccuStream, 4757 Mustang Circle, Mounds View, MN 55112.

New ESAB Cutting System
Web Site Provides On-Line
Access to Technical Service
& Product Information

ESAB Cutting Systems has established a new web site at www.esabcutting.com designed to assist customers in obtaining technical information about the service and operation of their machines, as well as information about the various products and systems available from ESAB.

The new web site, which launched in April, has already drawn more than 2000 unique visitors. It provides access to technical manuals, helpful articles about cutting applications, technical service comments and notes, and a vast storehouse of knowledge from this leading manufacturer of gantry cutting systems. It also provides information about all ESAB's current products, as well as information on older systems. In addition, customers can submit problems and questions they have about their cutting systems and receive timely answers via e-mail. In addition, the web site provides an up-to-date listing of all training classes and allows customers to register on-line for upcoming training classes.

"As a leading manufacturer of cutting systems, ESAB feels it is a priority to share our knowledge and experience with our customers. We also wanted to ensure that if our customers have problems, we can provide them with quick answers that will get them back up and cutting as soon as



possible. This web site utilizes the latest web technology to help make that happen," says Customer Support Manager Charles Walker.

For more information on ESAB products and services, contact ESAB Cutting Systems at 800-ESAB-123, e-mail to: service@esabcutting.com, or visit the web site at www.esabcutting.com.

P.C.S. Inc. Acquires Heavy
Duty Hydro-Blasting, Inc.

P.C.S. Inc. of Stuart, Florida, has announced the acquisition of Heavy Duty Hydro-blasting, Inc. of Palm City, Florida.

(continued on page 25)

Pipe And Tank Cutting With Abrasive Jets

Jetting Systems and Accessories, now a brand name under Gardner Denver Water Jetting Systems, Inc., offers a growing line of quality high-end water jetting accessories. These versatile accessories work well with the Partek line of pumps, and the Liqua-Blaster line of waterjetting units.

The Jetting Systems line of Wet Abrasive Cutting Systems solve a variety of commonly encountered industrial tank and pipe cutting issues. It can be very expensive to completely shut down and evacuate all personnel and potentially flammable substances from a given plant in order to clean or rehab pipes or tanks, so conventional torch cutting becomes not only expensive but very dangerous. The Jetting Systems Wet Abrasive Cutting Systems is a lot cooler and safer because it generates a minimal amount of sparks and heat. We do recommend a consultation with a Gardner Denver Water Jetting Systems engineer to assure that the correct cutting system is matched to the application.

From the productivity perspective, this system easily out-performs many other systems on the market. The Wet Abrasive Cutting System makes a clean cut through metal up to five inches thick. This system is designed to be fully portable and easily set-up by a two man team. The three function control panel of the Suction Track Wet Abrasive Cutting System are easily mastered with minimal training, and offer the ability of the operator to operate at a safe distance from the cutting area.

A variety of track mounting options assures that the system can be tailored to handle the job efficiently. A suction cup style flexible stainless steel track and the standard rigid track usually

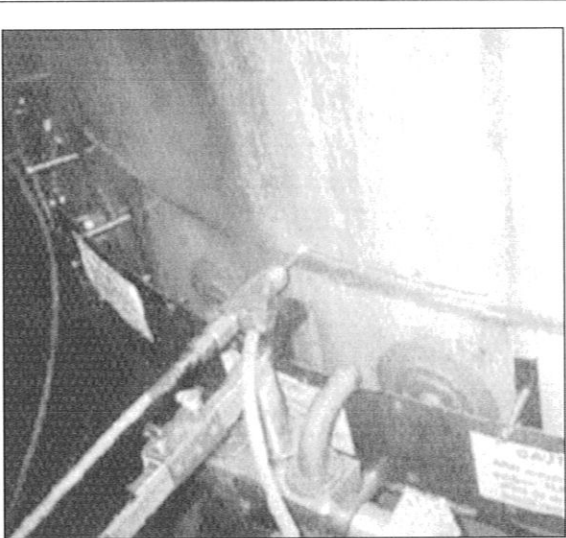
for the suction cups, a magnetic flex-track is available.

The system includes a dolly-mounted abrasive hopper with an air-operated metering assembly, control console mounted on a portable stand, parallel and perpendicular nozzle mounting brackets, a carbide slurry nozzle, a universal power head that works with both the pipe line cutter and the flex track, and of course, the track-mounting option of choice.

Also available is a Jetting Systems Waterjet Radius Cutter, which can also be mounted to the flex track systems, and adjusted to cut from 5" to 9" radii in either flat or curved surfaces. This is ideal for cutting doors and other passages into sheet metal.

For more information, contact Gardner Denver Water Jetting Systems, Inc., phone: 800-231-3628, 281-448-5800, fax: 281-

448-7500, www.waterjetting.com, mktg.wjs@gardnerdenver.com



The Jetting Systems wet-abrasive cutting system can mount to any size steel wall or pipe using either suction cups or magnets. The Suction Track is pictured at right. This system can neatly punch and cut up to 5" (127 mm) thick steel.

perform perfectly in most situations, but for those unique applications where either a little extra flexibility is required, or the surface is too corroded

For the attention of George Savanick and all
members of the WaterJet Technology Association

Dear George:

It is with heavy heart that we write to you with an expression of our sympathy of yesterday's (September 11) events across America and tragic loss of life.

Our thoughts are with you always.

From Management and Staff at JETCHEM SYSTEMS LIMITED, ENGLAND.

Awards for "Best"
papers presented
at the 2001 WJTA
American
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Luis Eugenio Ortega Trotter receives best applications paper award from Mohamed Hashish.



Umang Anand and Joseph Katz receive best research paper award from Mohamed Hashish.

2001 WJTA American Water Jet Conference

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Safety Video

The WaterJet Technology Association has released a new safety video, **Recommended Practices**, the companion video to the WJTA publication *Recommended Practices for the Use of Manually Operated High Pressure Waterjetting Equipment*.

The new video offers a visual depiction of many of the major topics in the WJTA's *Recommended Practices*, including suggestions for the operations of all types of manually operated high pressure waterjet equipment used by the construction, maintenance, repair, cleaning and demolition industries.

This video is an excellent training tool and supplement to operator training programs for businesses that use high pressure waterjet technology.

In addition to the safety video, the current edition of the *Recommended Practices* booklet and safety cards are available. An order form appears in this issue of *Jet News*.



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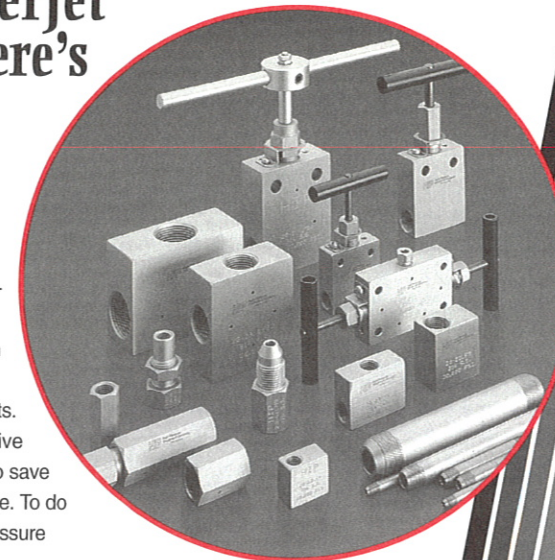
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PaR to Unveil Low Cost, High Precision Waterjet Cutting

Par Systems, Inc., an industry leader in overhead high precision processing systems, will introduce its latest waterjet cutting system, the Vector 2™, at FABTECH 2001 in Chicago, Illinois, November 11-14, 2001. The Vector 2™ system complements PaR's 2½, 3 and 5 axis gantry style waterjet cutting system, but is designed specifically for the 2½ axis market. The Vector 2™ features an integrated 50 hp intensifier pump and is designed for high production volume, precision waterjet cutting.

Additional features include:

- Robust industrial design for high demand production and performance;
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- Windows NT controller with absolute positioning, automatic point adjustment transformation and motorized Z;
- Standard integrated 50 hp intensifier pump with garnet delivery system; and
- Adaptable for multiple cutting heads.
- System operation training, maintenance training and PaR installation is included. In addition, PaR will be demonstrating the PaR 5 axis gantry waterjet cutting system at booth number 21057.

For more information, contact: PaR Systems, Inc., 899 Highway 96 West, Shoreview, Minnesota, 55126, phone: (651) 484-7261, fax: (651) 483-2689 or e-mail: ckoliha@par.com. Carrie Koliha, Marketing Coordinator.

TurtleSkin WaterArmor Receives US Patent For Innovative Design Protecting Waterjet Operators Up To 40,000 PSI (2800 Bar)

Warwick Mills has announced that TurtleSkin WaterArmor personal protective equipment (PPE) for waterjet operators has been tested and approved for CE mark* product certification at pressures as high as 40,000 psi (2800 bar). It has also just received a U.S. patent for the safety suit's innovative design, which allows flexing at all joints. TurtleSkin WaterArmor is designed to offer superior protection while offering exceptional flexibility and comfort, so important in physically demanding work. The suit is made using a layered system of patented TurtleSkin fabric which has the tightest weave ever achieved in Kevlar fiber, known for its high strength in ballistic vests.

Widely used in the U.S., the suit is being introduced throughout Europe now that it has been approved for CE mark, an assurance that it meets European safety requirements. The suit has already prevented accidents in the U.S. Recently in Detroit, Michigan, a waterjet operator using a rotating lance at a pressure of 36,000 psi (2500 bar), accidentally swiped his foot with the waterjet spray while wearing WaterArmor gaiters. Not only was there no penetration to the operator's boot underneath, the protection was such that the operator did not realize that he had even been hit until he inspected his gaiter.

A number of other recent incidents have occurred in which personal injuries were avoided because the waterjet operator was wearing TurtleSkin WaterArmor. For example:

1. On July 1, 2001, in Texas an operator was struck by a 36,000 psi waterjet in the shin area. TurtleSkin saved the operator from severe injury.
2. On August 9, 2001, in California an operator was accidentally swiped on the foot during surface

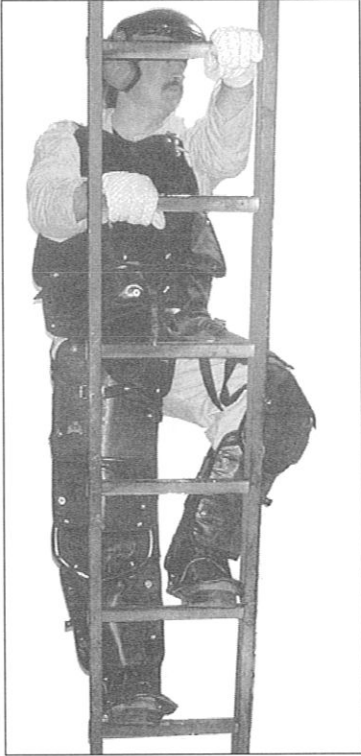
preparation of an aluminum structure while using a rotating lance at 36,000 psi with two 2.62 gpm jets. The operator was wearing TurtleSkin gaiters and so was not injured.

3. On March 9, 2001, an operator was hit in the foot by a straight jet (36,000 psi). He was spared injury because he was wearing TurtleSkin gaiters.

Both safety and comfort are key elements in the design of the TurtleSkin WaterArmor suits. "We had to make sure WaterArmor was really comfortable. If it isn't, men just can't wear it day in and day out. So we made sure it's lightweight, as well as easy to bend, twist and move around in," says engineer and designer, Charles Howland at Warwick. "There's even a built-in cushioned knee for kneeling on concrete." In addition to the patented fabric, the suit has received a patent for its design that allows the panels covering the thigh to be shortened or lengthened, so that one suit can fit anyone. Each of the twelve panels can also be replaced if one should be hit by a jet of water, extending the life of the product beyond other PPE.

The TurtleSkin WaterArmor uses space-age technology to give waterjet operators better puncture resistance without sacrificing flexibility. Its patented TurtleSkin fabric contains Kevlar, a fiber two times the strength of steel and five times lighter. A TurtleSkin fabric was also used in the crash bags that allowed the NASA's spacecraft Pathfinder to land successfully on Mars in 1997, and will be used in three upcoming missions to Mars from both the UK and US in 2003.

TurtleSkin WaterArmor is now available through pump manufacturers throughout the US and Europe. For



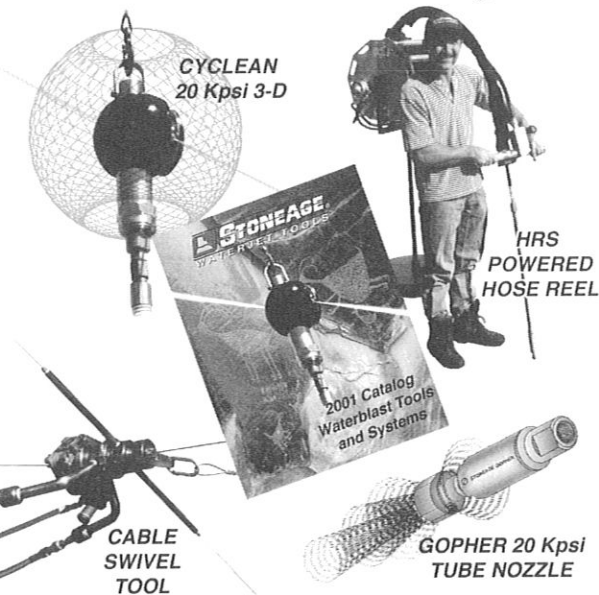
information, call 1-603-878-1565 or visit the TurtleSkin web site at www.waterarmor.com.

*The CE mark (Conformite Europeene) indicates that a company has met essential health and safety requirements and allows manufacturers to circulate industrial products freely within the internal market of the European Union.

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and hydraulic mining. We had a unique laboratory situated underground in an abandoned Nike Hercules missile site. This setting permitted us to build and test full scale hydraulic mining equipment. We conducted hydraulic mining research by iteratively designing, building and testing full scale equipment. I had a lot of help over the years. One of my most helpful colleagues, Arthur Miller, is present here tonight. Thank you, Art.

There was another aspect of the research in at the US Bureau of Mines. We had an active contract research program. This program was very helpful to the fledgling waterjet industry. We were Flow Research's major customer in the early 1970s. John Olsen tells me that Flow Research might not have succeeded in the early 1970s without government research contracts. The Bureau of Mines also funded a young David Summers at the University of Missouri-Rolla and Andy Conn's work on cavitation at Hydronautics.

I am a great believer in government funded research. Many wonderful products have been developed as a result of this research. I believe this research is necessary to maintain and advance our highly technological society. It is an investment in the future of the nation.

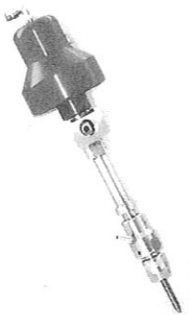
As one of the first members of the WJTA, I have been associated with the administration of the association since the early 1980s. In the early and mid 1980s, the day-to-day operations of the association were in the hands of amateurs like me. Until 1988 the association was run out of the offices of the board members. Day-to-day association

business was conducted when the president or secretary could take the time away from his/her day job. Because of this situation the association could not grow at the rate that the Board of Directors desired. So one day in 1988 we visited the offices of David Birenbaum, a specialist in association management in St. Louis, Missouri. David Birenbaum said he was not interested in managing our association, but suggested that we might take a chance by hiring "the kid," his son Mark. We decided to take a chance with Mark Birenbaum, and we are very glad that we made this decision. Since we hired Mark Birenbaum, the association has grown to become the preeminent waterjet technology association in the world, and our waterjet conferences have become the most influential among such conferences.

I have enjoyed working with Mark Birenbaum and his associates, especially Ken Carroll and LeAnn Hampton. LeAnn and I have worked together on Jet News. Jet News has grown from four pages to 24 pages since 1988. The purpose of Jet News is to offer members a means of sharing their knowledge of waterjet technology. I urge you to help advance the art and science of waterjet technology by volunteering material for Jet News.

If we cooperate we can all progress further, learn more and be more productive. The WJTA exists solely to facilitate cooperation between members. I urge members to become active in the WJTA and help advance the art and science of waterjet technology. We all benefit from these technological advances.

- George A. Savanick, Ph.D.



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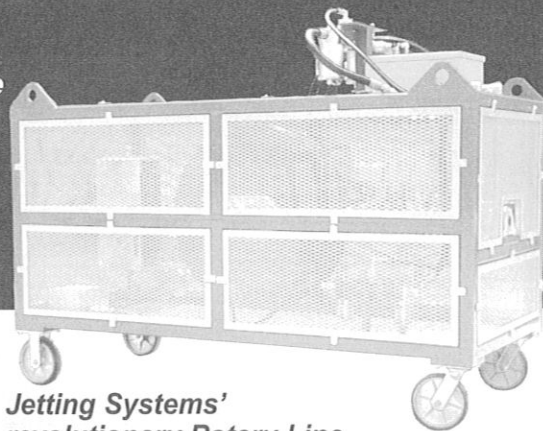
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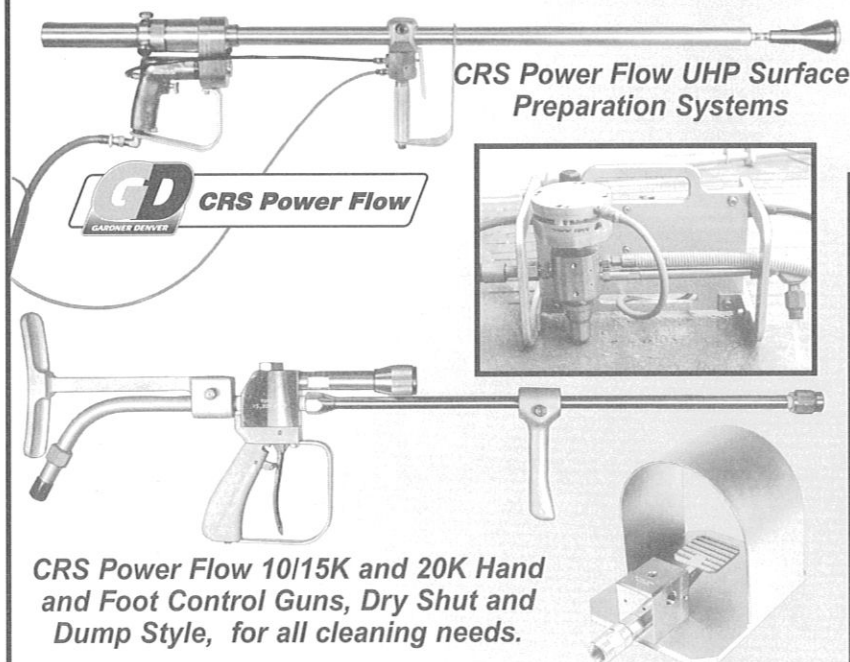


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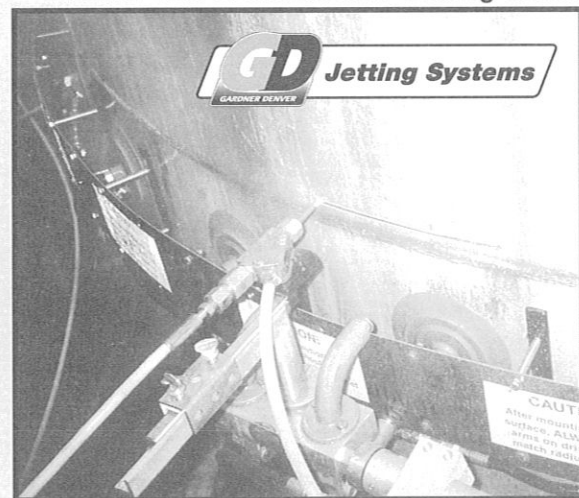


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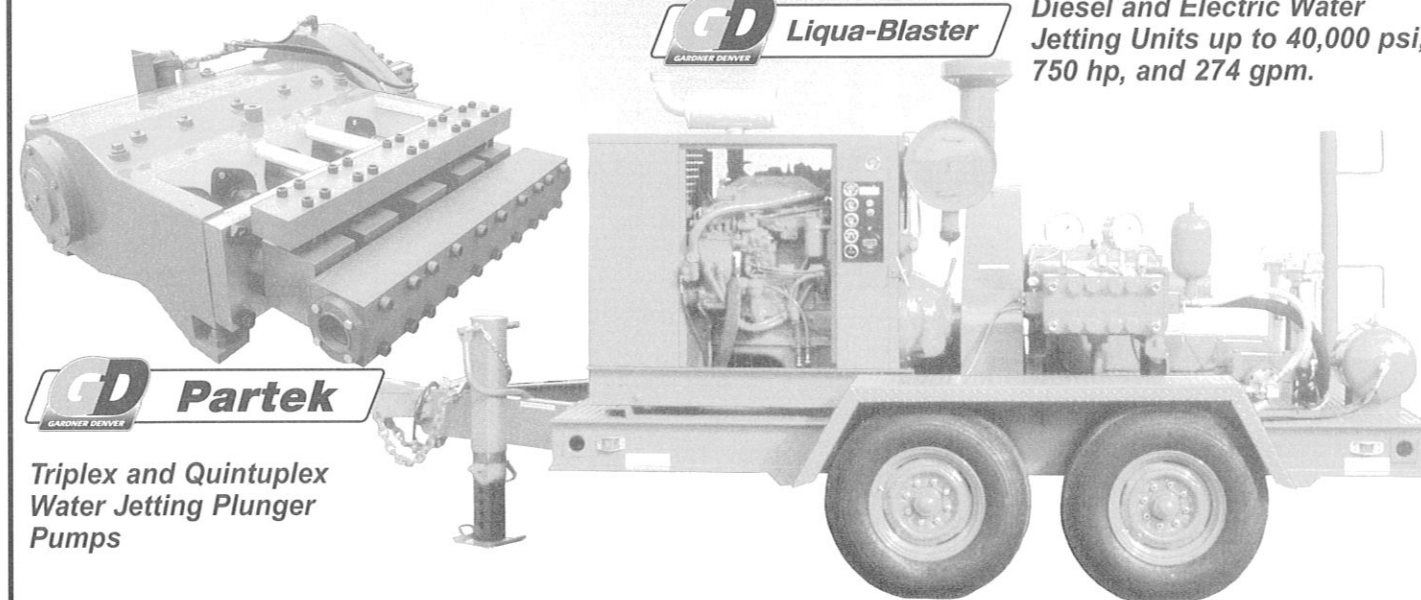


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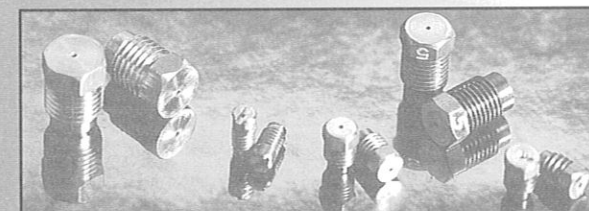
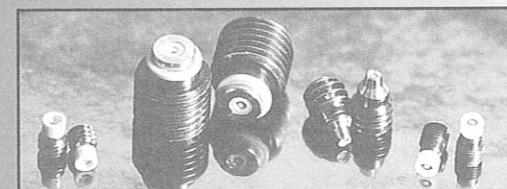
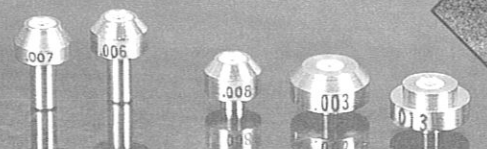
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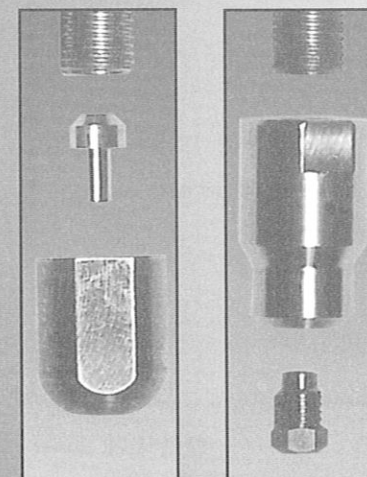
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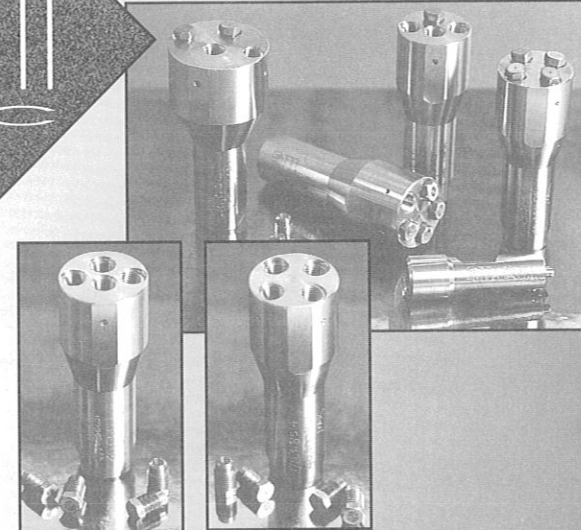
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(l. to r.) George Savanick, Pioneer Award winner, and Richard Ward, Technology Award winner.



Richard Ward (r.) receives the Technology Award from Mohamed Hashish (l.).

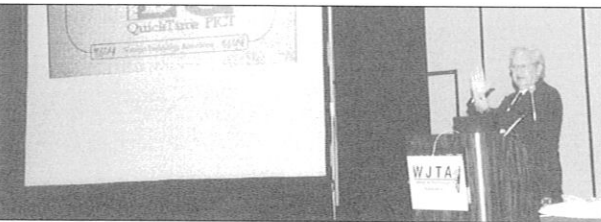
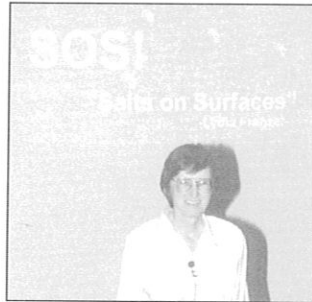


George Savanick (l.) receives the Pioneer Award from John Wolgamott (r.).

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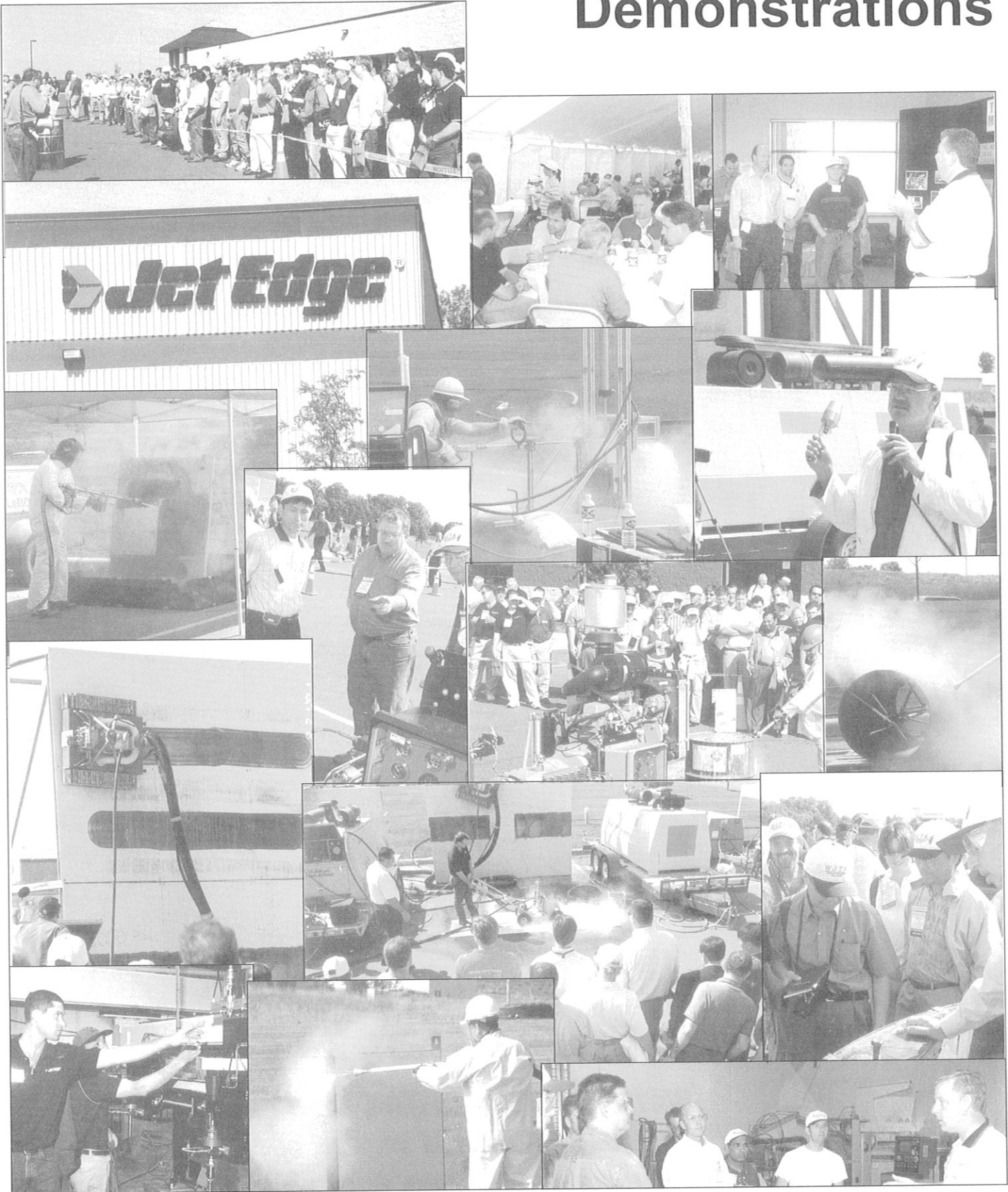
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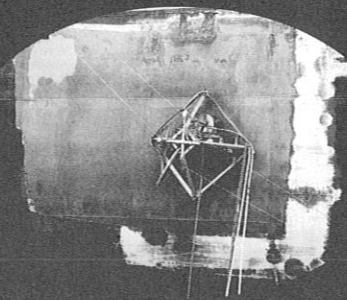
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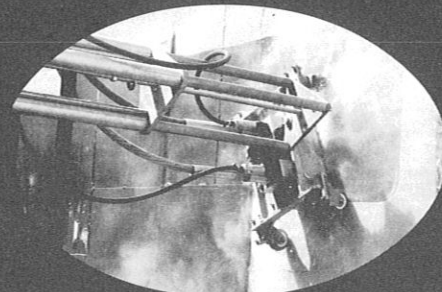






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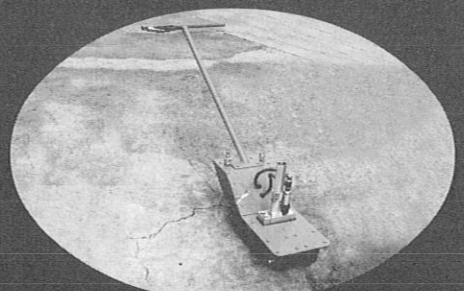
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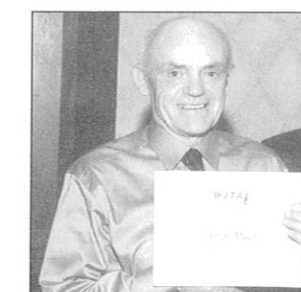
Paul Miller



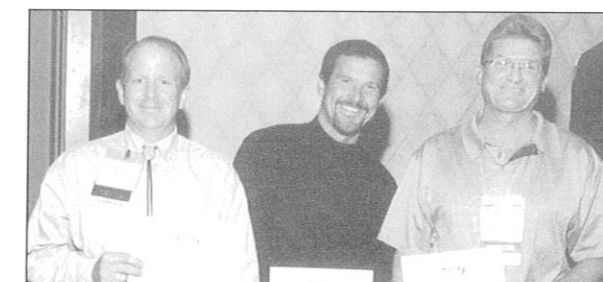
**M. Ramulu and
S. Kunaporn (not pictured)**



Jack Russell



Don Miller



(l. to r.) Jerry Zink, Doug Wright and John Wolgamott

Hydrodemolition On A Finnish Bridge, from page 13

velocity, and allowing an optimum distance to always be achieved.

On this project, the HVE-6000 robot is operating with a nozzle distance of 15mm, which is usually considered to be an optimum distance.

The Aquacutter is working in conjunction with a high-pressure containerized power pump which driven by a 275kW diesel engine. The water pump is supplied with water via the main water supply and delivers water 1400bar and 82 liters per minute to the robot.

The HVE-6000 TC Aquacutter robot itself is powered directly from the main electric supply. Once the concrete has been removed from both parapets and the rebar cleaned, new concrete will be poured, and the depth will be increased to 50cm.

The bridge deck carrying the four traffic lanes has had its asphalt surface

removed and after diagnostic tests it was deemed to be in better condition than the parapets. Only minor repair work is being carried out on the deck surface before a new asphalt surface is laid.

On the deck surface, as well as the underside of the bridge, Vesipiikkaus is employing a team of workers using handheld water lances to remove damaged concrete to a maximum depth of 1cm and surface preparation for a new coating.

“As the parapet beams are the most exposed areas of the bridge, they are most in need of repair and using the Aquacutter has proven to be the most cost effective and efficient method,” commented Jaakkola.

The entire Forssa bridge project was completed in September 2001.

For further information please contact Stefan Hilmersson, Aquajet

Systems AB, Brunnsvägen, SE-570 15 Holsbybrunn, Sweden, phone: +46 (0)383 508 01, fax: +46 (0)383 507 3 or e-mail: aquajet@aquajet.se

Calendar of Events

FABTECH International

FABTECH International, a metal forming and fabricating exposition and conference, is scheduled for November 11-14, 2001, at McCormick Place South in Chicago, Illinois. For more information, call 815-399-8775 or visit thefabricator.com.

7th Pacific Rim International Conference on Water Jetting Technology

The 7th Pacific Rim International Conference on Water Jetting Technology will be held May 18-22, 2003, at the Seogwipo KAL Hotel in Jeju, Korea. The Conference is organized by the Korean Society of Water Jet Technology and the Korean Institute of Mineral and Energy Resources Engineers. Abstracts are now being accepted for the program. For more information, contact Conference Chairman, Prof. Chung-In Lee or Conference Secretary General, Dr. Wan-Mo Kim, The Korean Society of Water Jet Technology, Research Institute of Energy & Resources, Seoul National University, San 56-1 Shilim-Dong, Gwanak-Gu, Seoul, 151-742, Korea, phone +82-2-880-7233, fax: +82-2-873-2717, e-mail: kswjt@kojet.org, web site: www.kojet.org.

SSPC Annual Conference

The Society for Protective Coatings (SSPC) Annual Conference will be held November 11-15, 2001, in Atlanta, Georgia. For more information, contact Dee Boyle, SSPC, 40 24th Street, 6th floor, Pittsburgh, PA 15222-4646, phone: (877)281-7772, (412)281-2331, ext. 202, email: boyle@sspc.org.

Hydrodemolition On A Finnish Bridge

Finnish concrete demolition specialist Suomen Vesipiikkaus Oy has recently taken delivery of Finland’s first Aquajet Systems hydrodemolition robot featuring the company’s new Total Control (TC) concept. The new Total Control concept features a radio remote control and allows the operator full control of the robot up to distance of 50m. By using this efficient control system, the operator can easily adjust the computerized program for any hydrodemolition project. The programs can also be saved and stored in the system for further use when required. The new and improved unit is also available with either diesel drive (HVD-6000) or with electric drive (HVE-6000).

Suomen Vesipiikkaus took delivery of its HVE-6000 TC Aquacutter robot earlier this year, and it has already completed a number of projects.

Currently the machine is operating on a road bridge rehabilitation project in the town of Forssa, approximately 100km northwest of Helsinki. Spanning the River Loimi, the 40m-long bridge carries one of the main arteries from the town center. With a width of 28m the bridge has four traffic lanes, two in each direction, as well as two pedestrian paths on either side. Built in 1961, the concrete structure has never been repaired and recently the town administration decided urgent repairs were necessary.

“Salt and ice had badly corroded the parapet beams on either side of the bridge,” explained Timo Jaakkola, project manager for Vesipiikkaus. “It was decided that the quickest method to repair these sections was hydrodemolition,” he added. The two parapet beams are each 30cm wide x 30cm deep, and were originally

constructed — as the entire bridge was — from pre-cast elements.

The main contractor for the project, Seicon Oy, subcontracted all concrete removal to Vesipiikkaus. After careful analysis, it was decided that the concrete parapet beams would need to be completely replaced. The unit is removing all concrete from both parapet beams, leaving the rebar cleaned of any concrete, rust or residue.

The Aquacutter has the option of up to four different speeds, all of which can be utilized on the same overpass. The unit’s nozzle can be altered from -44 to +44 degrees. Speeds and angles are programmed into the machine’s computer to correspond with the project’s damaged concrete. The power of the waterjet corresponds with the speed and angle of the nozzle, and this in turn corresponds with the depth and strength of the concrete to be removed. The Aquacutter’s computer allows for the most efficient and effective removal of concrete and also provides tracking of production rates and operating hours, all stored in a memory bank.

Due to the effects of salt and weathering, the parapet’s concrete varies in strength, from 15N/mm² to 50N/mm². Consequently, the Aquacutter, maintaining a nozzle angle of 5° to the surface, is working with



overpasses of 1m/min minimum to a maximum of 2m/min. Work was also made difficult with the maximum aggregate size being up to 100mm.

The Aquacutter is equipped with Aquajet’s EDS (Equal Distance System) which controls and maintains the nozzle’s distance from the concrete surface, with no loss of

(continued on page 16)

2001 WJTA American Waterjet Conference



Dick Demmings (r.) of Ingersoll- Rand and George Savanick (l.) cutting ribbon to open Welcoming Reception in the Exhibition Hall.



Pioneer Award winners present at Awards Presentation/Las Vegas Night. (l. to r.) George Rankin, Mohamed Hashish, Fun-Den Wang, John Olsen, David Summers and George Savanick.

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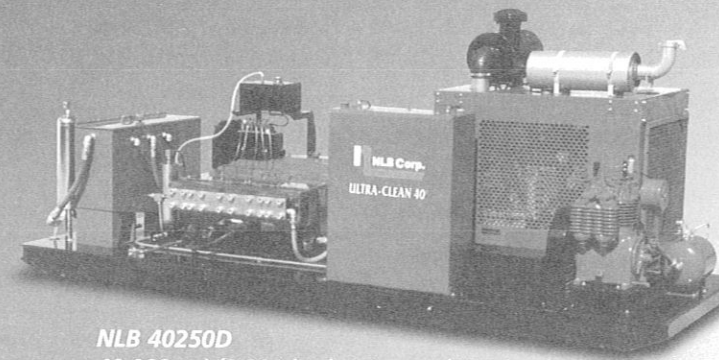
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2001 WJTA American Waterjet Conference

Technical Tour & Field Demonstrations

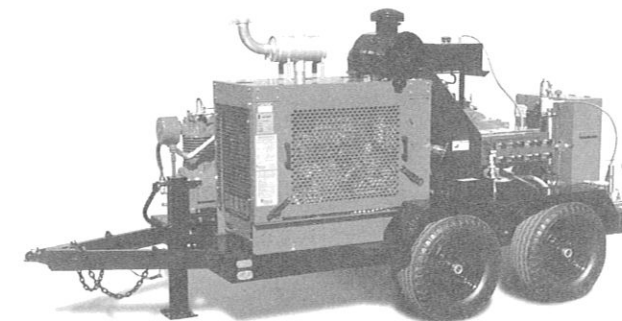


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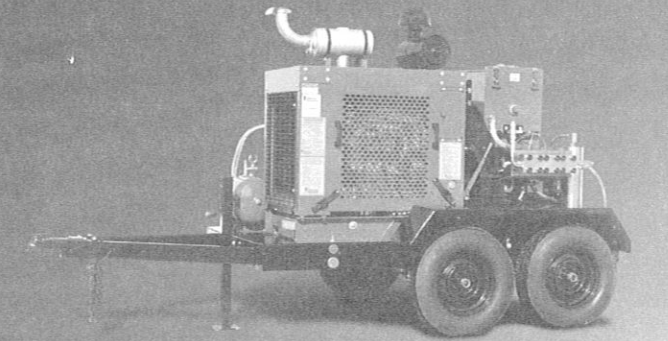


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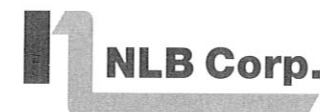
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