



## Competition With Waterjets



**The Delano, Minnesota volunteer fire department team in a "water ball fight". The men's team is competing while the women's team looks on.** Photograph courtesy of the Delano, Minnesota volunteer fire department.

**V**olunteer fire departments stage tournaments called "Water Ball Fights" during small town festivals. Teams of firefighters train a jet from fire fighting nozzles onto a beer keg or a ball target suspended on a cable. They try to push the target toward the opposing team.

(continued on page 7)

# Waterjets Used To Reclaim Gold From Mine Dump In Zimbabwe

By: Richard Ward, President of Richel, Inc., a consulting group, and founder of Waterjet Connection, a waterjet cutting and machining services group.

**T**here was a sense of excitement as I found myself negotiating the narrow strip road that passes Lonely Mine, 80 miles north of Bulawayo, in the country of Zimbabwe.

I was born in Zimbabwe and lived in Africa for 34 years prior to locating to the USA for work opportunities. The objective at the Lonely Mine operation is to recover gold left in the mill tailings dumps in the 1930s. Casmyn Mining Zimbabwe (Pvt)Ltd, a wholly owned subsidiary of Casmyn Corp., listed on the bulletin board of the NASDAQ stock exchange, aims to treat 45,000 tons per month at Lonely Mine. The dump has sufficient reserves for a two and a half year project life. This project is one of two large dump retreatment projects the company has in the area.

The process is really very simple and cheap. The production costs are around US\$ 200 per ounce of gold.

The most critical part and most scarce resource of the operation is water. Under the heat of the relentless African sun, approximately 75% of all the process water evaporates from the tailings dam before it can be recycled. The makeup water is pumped from the old mine shaft to a plastic lined surface storage dam.



Processing Plant

From here, 75 cubic meters per hour of water, at pressures of 36-40 bar are pumped through a 19 mm nozzle to produce a jet stream powerful enough to break down the tailings. The result is a mixture whereby 55% is solids in the form of suspended tailings called pulp, the balance being water. The pulp then gravitates via a system of trenches to a pump where lime is added for pH control before it is pumped to the processing plant.

The plant (designed by RPM Engineering, Pty. Ltd., Bulawayo) is a modular and easy to transport plant consisting of six treatment tanks in series. The first is a conditioning tank where cyanide is added to dissolve the gold. The next five tanks have activated carbon in them (made from burning coconuts) for the absorption of the dissolved gold. The process is a counter current between the carbon and the pulp. That is to say carbon is pumped up the tanks while pulp flows via gravity down the tanks. The processed pulp is then pumped back out to the tailings, leaving the gold behind

in the tanks on the carbon. The carbon is removed from the tanks once a day.

A major obstacle to this project would have been the spoiling of some



Sluicing gold tailings in Zimbabwe.

10 hectares of prime untamed African bush needed for the new tailings site. By coming up with a system whereby the processed pulp is pumped back into the already worked tailings dams, the unspoiled land surrounding the tailings dams is preserved. In effect, the entire tailings dams will be reworked without disturbing the surroundings at all - a strategy for which the locals can thank Ian Saunders, Chief Metallurgist for Casmyn Mining Corporation.

## Comparison of Sluicing verses Hauling

A detailed analysis comparing the costs of the traditional haul and dump operation identified the sluicing to have a cost of Z\$2.39 per ton verses Z\$10.45 per ton for haul and dump. A considerable savings and one of the key factors to producing the gold at such a low cost.

But the advantages of sluicing do not stop here.

Zimbabwe has dry winters with a heavy rainy season in the summer. The result is impassable mud roads.

(continued on page 6)



## 1996 SSPC Technical Achievement Award Presented to Dr. Lydia Frenzel

**L** Lydia M. Frenzel, Ph.D., executive director of the Advisory Council, received the Steel Structures Painting Council (SSPC), 1996 Technical Achievement Award for outstanding service, leadership, and contribution to the SSPC technical committees. This prestigious award was presented in Charlotte, North Carolina, November 20, at the annual conference.



**Lydia M. Frenzel, Ph.D.**

Over the past three decades, Dr. Frenzel has held positions in education, research, and corporate business. Among her accomplishments are the pioneering of marine research at the University of New Orleans, directing research and marketing for international companies, and directing the educational program of CCI Training Services. Currently, she serves as the chief spokesperson for the Frenzel Conference Series and as executive director of the Advisory Council. Dr. Frenzel is an elected member of the board of directors for the WaterJet Technology Association (WJTA) for the 1995-97 term and is a long-standing chair of SSPC-NACE (National Association of Corrosion Engineers), International Wet Blast Committees.

Frenzel chairs joint NACE International and SSPC task groups to develop world-wide standards which are of mutual interest to both

organizations. Under Frenzel's direction of NACE/SSPC Task Group Task Group on High Pressure Waterjetting, the group produced SSPC-SP 12/NACE No. 5 Standard on High and Ultrahigh Pressure Waterjetting. She chairs the SSPC/NACE Joint Task Group on Wet Blast Visual Standards and the Joint Task Group on Wet Blast Cleaning. Before the formation of joint task groups, Dr. Frenzel was active in SSPC committees on wet blast cleaning and visual standards. Lydia heads a current project for the National Ship Building Research Program, Sp-3, to produce visual reference photographs for waterjetting on steel surfaces. The

NSRP is a cooperative effort between the marine shipbuilding industry and the federal government to make American shipbuilding more viable in the world market.

## New FLOW Office In Michigan

**F**low International Corporation has announced the opening of a new sales and training office in Plymouth Township, Mich., a Detroit suburb. The 30,000 square foot building will serve as a regional sales, technical support and customer training facility.

FLOW previously had a smaller facility in the Detroit area. The new facility features three waterjet demonstration and customer training laboratories, each equipped with FLOW's complete line of waterjet pumps and two-and three-dimensional, CNC-and PC-based shapecutting

machines. Two certified instructors will teach weekly training classes on preventative pump maintenance, CNC and PC control operation and abrasive waterjet process techniques. The waterjet demonstration laboratory will produce cut samples for prospective customers, and assist them with research and proprietary material separation studies.

For more information, contact Flow International, 23500 64th Avenue South, Kent, WA 98032, telephone: (206)850-3500, fax: (206)813-3285.

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The advertisement features a close-up of a waterjet nozzle spraying a fine stream of abrasive material onto a curved, polished metal surface. The background is a deep blue. The Barton logo is in red at the top right, and the product name is in white. Contact information is at the bottom.

## New Protection For Waterjet Workers

**J**etech Inc. exhibited a protective garment for waterjet workers at the International Liquid Waste Haulers Equipment and Trade Show held February 6-8, 1997, in Nashville, Tennessee. Preliminary testing of this equipment indicated protection from a 30,00 psi, 6 gpm waterjet traversed across the garment at a standoff distance of 4 inches. Additional testing is underway. Jetech plans to exhibit this protective garment at the 9th American Waterjet Conference to be held August 23-26, 1997, in Dearborn, Michigan.

### WJTA Administration

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(314)241-1445

## Mohamed Hashish Joins FLOW as VP, Advanced Applications

**D**r. Mohamed Hashish has joined Flow International Corporation as vice president, advanced applications. Hashish, known as the inventor of abrasive waterjet technology when previously associated with FLOW, will assume responsibility for the development of advanced applications worldwide. Many of the potential applications are currently accomplished by the use of conventional technologies.

Hashish joining FLOW demonstrates the company's commitment to expanding its position as the world leader in waterjet technology applications. Hashish is recognized as one of the world's foremost waterjet experts. He holds 12 patents related to jet cutting and high-pressure

technology. His background includes expertise in high-pressure design, friction and wear.

Hashish has a doctorate in mechanical engineering from Concordia University. He received the first technology award given by the Water Jet Technology Association (WJTA), where he is a board member, and has published more than 130 papers in journals and conference proceedings.



**Dr. Mohamed Hashish**

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**polyflex™** thermoplastic hose assemblies are extremely lightweight, chemically resistant and are designed to minimize pressure drop and volumetric expansion. They offer excellent service in applications such as: Pressure Testing, Instrumentation, Fuel Injection, High Pressure Waterblasting and Water Jet Cutting, High Pressure Hydraulic Tools, and Nitrogen Pumping.

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## Waterjets Used To Reclaim Gold From Mine Dump In Zimbabwe, from page 2

The sluicing method on the other hand will benefit from the additional water.

Another major benefit is eliminating the construction of haul roads, their maintenance and "dead space" they create in the middle of the tailings dams. Using a slope angle of 45 degrees, a 10 meter wide road is needed for the trucks to drive on. By utilizing the sluicing method, the top of the wall need only be four meters wide. The walls for hauling need to be straight, restricting the freedom often desired by those planning the operation. When sluicing, this is not an issue.

### 24 Hour Standby Equipment

When running 24 hours per day, standby equipment is vital. In a remote location such as the aptly named Lonely Mine, the cost of having standby trucks and excavators would be high.

Conversely, the cost of a standby pump is minimal.

### Coca-Cola comes to the rescue!

In the bush, finding spares for even the simplest equipment, can be challenging. This was the case with 19 mm nozzles used to form the jet. As engineers relaxed enjoying a true African sunset, downing a cold beer... and Coca-Cola, discussion began to revolve around the almost perfect hydraulic shape of the inside of a coke bottle neck! It was only days before a few Coke bottles, the contents consumed, had been tried. By adding putty to the outside of the neck, the new nozzle fitted perfectly



A 550 psi, 330 gpm waterjet issuing from a moveable monitor.

into the housing of the high pressure monitors. The results were astounding! The nozzles work perfectly, once again adding another simultaneous operation to Lonely Mine...consumption of Coca-Cola, and the generation of nozzles!

And who says Coca-Cola isn't the real thing.

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\*Area code 248, mid-1997

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NLB offers the broadest range of water jet pumps and accessories in the world, and the technical knowledge and customer service to make water work for you. Call NLB today.



\*WJ-1 is an international surface standard, ref. NACE No. 5/SSPC-SP 12.



## Competition With Waterjets, from page 1

At the start of the contest the target is suspended midway on a 100 foot cable between two opposing teams. Water is supplied to both teams through 100 feet of 1.5-inch diameter hose connected to a pumper truck. Competition is held for both men and women's teams. Each team consists of three to five people holding their hose and nozzle. In the men's competition the nozzle is supplied with 120 gpm of water at 150 psi whereas women compete with 125 psi, 120 gpm waterjets.

The object is to push the target toward the opposing team. Each contest lasts two to three minutes at the end of which the jets are turned off and the position of the target is noted.

The team which has pushed the target onto the opponents side of the cable is declared the winner. Team members wear standard fire fighting equipment including face protection.

Tournaments usually involve 12 or 13 fire departments. The overall winner is determined in a double elimination competition. The overall winner is awarded a handsome trophy and has bragging rights in the region.



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## Water Jet Stack Cleaners

**T**wo new rotary swivels from NLB Corp. feature adjustable speeds for efficient cleaning of blocked pipes and stacks. The force of the high-pressure waterjets, combined with the offset angle of the nozzles, creates rotation speeds of up to 3,000 rpm.



Model NLB7420 weighs just 9.5 pounds, yet delivers an operating pressure of up to 12,000 psi with flows up to 20 gpm. Rotating speed can be adjusted between 270 and 3,000 rpm. Model NLB7500 operates at pressures of up to 10,000 psi with flow of up to 100 gpm. It is adjustable from 200 to 3,000 rpm.

Rotation speeds are easily adjusted to increase dwell time and assure the most efficient combination of rotation speed, pressure, flow, and travel speed. The user simply adjusts a magnetic brake by threading a hex nut into the body of the stack cleaner to slow the rotation and turning it out if faster rotation is desirable.

The NLB7420 and NLB7500 rotary stack cleaners are available with optional pull rings, centralizer skids, speed monitors, nozzle blocks, and line mole heads.

For more information, contact NLB Corporation, 29830 Beck Road, Wixom, Michigan 48393-2824, telephone: (810)624-5555, fax: (810)624-0908.

## Dear Jet News:

Re: Section 13.16 of the WJTA's  
*Recommended Practices for the Use of  
Manually Operated High Pressure  
Water Jetting Equipment*

The above listed section of the Waterjet Safety Practices instructs that a hose should have a burst rating of a minimum of 2.5 times the intended working pressure it is certified for use at by the manufacturer. In the earlier publication of the manual in section 4.8 you addressed operating levels below this minimum burst rating should require a protective shielding around the hose.

The practice of operating below the 2.5 safety margin with protective shielding still occurs. Since this was not addressed in the updated section 13.16, is it safe to assume that this practice should be stopped? We are approached constantly about this matter and have no definite answers. It would be greatly appreciated if your organization could resolve this situation.

Sincerely,

Tony Bessette, Vice President  
Spir Star, Inc.

Dear Mr. Bessette:

Thank you for your letter of January 21, 1997, regarding safety factors for high pressure hoses.

We recommend that high pressure hoses should have a burst rating that is a minimum of 2.5 times the intended working pressure for which it is certified for use by the manufacturer. The hose should not be used above the manufacturers' recommended working pressure regardless of the use of protective shields around the hose. Thus we intended that Section 4.8 of the version of *Recommended Practices* approved in June 1985 be superseded by Section 13.16 of the latest version of *Recommended Practices*.

With regards,

George A. Savanik, Ph.D  
President

## — WANTED —

### Director Of Technology

Waterjet Technology, Inc. (formerly QUEST Integrated, Inc.) is seeking a senior level technical expert to market, plan and direct complex waterjet and abrasivejet R&D projects. Requires Ph.D. and 10-15 years R&D experience, preferably with some industrial or commercial experience.

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# Ingersoll-Rand WaterJet Systems and Hartwig Inc.

## Sign Mid-States Distributorship Agreement

**I**ngersoll-Rand Waterjet Systems, has signed a distributorship agreement with Hartwig, Inc., of St. Louis. Under the terms of the agreement, Hartwig becomes the exclusive manufacturer's representative for Ingersoll-Rand Waterjet Systems for the states of Oklahoma, Missouri, Kansas and Arkansas, as well as for southern Illinois.

"We are very selective about our distributor relationships," says Skip Reynolds, Ingersoll-Rand regional sales manager. "Our policy is to establish relationships with only the premium machine tool distributors in

the U.S. After being evaluated, Hartwig was selected because of the quality of the products they carry, their service and their overall organization."

"Our sales engineers are extremely excited about the possibilities of working with Ingersoll-Rand, based upon the products as well as the company," says John Hartwig, vice president of Hartwig Inc. "They are enthusiastic about the quality level and the market potential of the Ingersoll-Rand waterjet product line, and they like working with the Ingersoll-Rand Waterjet Systems team. It's a good fit for us."

The Ingersoll-Rand company invented waterjet cutting technology, and has been a leader for over 25

years in developing, building, applying, and servicing complete waterjet cutting systems for customers throughout the world. The company's efforts are supported by a global network that includes manufacturing and service locations in the U.S., Europe and the Asia-Pacific.

For more information, contact Ingersoll-Rand Waterjet Systems, 23629 Industrial Park Drive, Farmington Hills, MI 48335. Toll-free phone: 1-800-286-2971; fax: (810) 471-9113—or, outside the U.S. (810) 471-0888, or <http://iraautomation.com/wjs/>.

Hartwig Inc. is headquartered at 1452 Warson Road N., St. Louis, MO 63132. Phone: (314) 426-5300; fax: (314) 426-5311.

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## Candidates Sought For 1997 WJTA Awards

**Y**ou are invited to submit candidates for these special awards that are presented biennially by the Waterjet Technology Association to honor a company, organization or individual who has made a significant contribution to the industry through accomplishments that directly enhance waterjet technology and the industry as a whole.

**Candidates must be received no later than July 1, 1997.** The award recipient, to be selected by the Awards Committee of the Waterjet Technology Association, will be honored at a presentation ceremony on Sunday, August 24, 1997, in conjunction with the 9th American Waterjet Conference in Dearborn, Michigan.

Following is an official form for candidate nominations. Complete one form for each nomination submitted. Please make additional copies of the form as needed. Nominations providing complete written information specified on the form may be faxed to (314)241-1449 or mailed to the Waterjet Technology Association, 917 Locust Street, Suite 1100, St. Louis, MO 63101-1413, USA.

## 1997 WJTA Awards Nomination Form

**Instructions:** Complete sections below and submit a narrative (300-word maximum) to support your nomination on a separate sheet of paper. Please print or type all information.

I nominate the following company, organization, or person as a candidate to receive a 1997 WJTA Award (CHECK ONE AWARD):

☐ **Distinguished Pioneer Award**

The nominee must:

- Have made contributions to the waterjet industry;
- Have made contributions to the achievement of the goals of WJTA;
- Have high moral character;
- Have strong personal and business ethics;
- Be dedicated to the future of the waterjet industry and to the growth of WJTA.

☐ Service Award

How has the nominated company, organization or individual contributed in time and talent toward improvement in the Waterjet Technology Association?

☐ **Safety Award**

What has the nominated company, organization or individual done to introduce new and innovative ideas in safety? This could include, but is not limited to new products, new concepts, new safety techniques . . . any unique activity which increases the overall safety of waterjet equipment.

☐ Technology Award

What has the nominated company, organization or individual done to introduce new and innovative ideas in engineering or manufacturing? This could include, but is not limited to, new products, new manufacturing techniques, patents . . . any unique activity that advanced the technology of the waterjet industry.

Candidate: \_\_\_\_\_ Company: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_ Country: \_\_\_\_\_

Phone In US/Canada ( ) \_\_\_\_\_ Fax ( ) \_\_\_\_\_  
area code area code

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Candidate Submitted By: \_\_\_\_\_ Company: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_ Country: \_\_\_\_\_

Phone In US/Canada ( ) \_\_\_\_\_ Fax ( ) \_\_\_\_\_  
area code area code

Phone Outside US/Canada [ ] ( ) \_\_\_\_\_ Fax [ ] ( ) \_\_\_\_\_  
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Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Nominations must be received no later than July 1, 1997. For a prompt response, fax completed form to (314)241-1449, or mail to the WJTA, 917 Locust Street, Suite 1100, St. Louis, MO 63101-1413, USA.



# Pentek Robot Walks On Walls

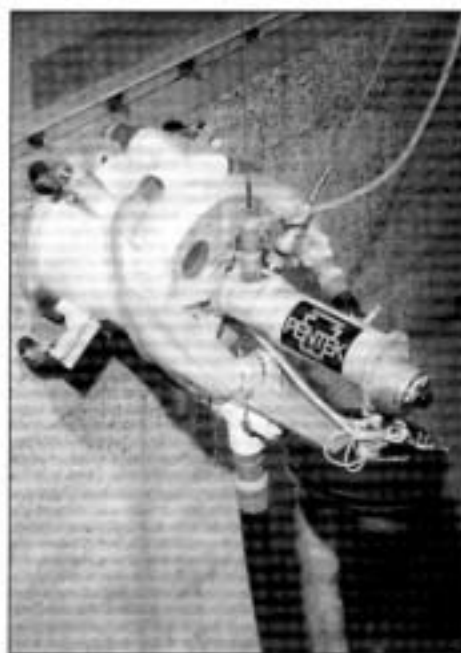
**P**entek successfully demonstrated a new robotic wall locomotion technology called the WallWalker™ for the DOE's Energy Technology Engineering Center (ETEC) in Canoga Park, Calif., in August 1996. This exciting technology makes it possible to deploy completely automated work modules to large vertical surfaces, while eliminating scaffolding, respiratory protection, and other safety equipment required to protect human workers. The WallWalker is programmable to adapt to walls of unlimited height and width, with the capability to conform to wall surface irregularities. The Canoga Park demonstration, part of a DOE EM-50-funded technology development effort, entailed the automated decontamination and surface removal of an 18-foot x 12-foot x 25-foot deep concrete waste storage vault at the site.

The WallWalker locomotion system utilized two gear motors to feed cable to a central process module. A computer with input grid coordinates controls the cable lengths, adjusting them as necessary for efficient locomotion of the unit across large surfaces with a high degree of precision and repeatability. The process module is configurable to perform 100% dustless surface preparation with hydroblasting, CO<sub>2</sub>, baking soda, chemicals, lasers, flashlamps, abrasive blasting technology, mechanical scarification, and other cleaning applications. Built-in engineering controls guarantee that hazardous emissions such as lead will be below OSHA and EPA regulatory limits. Simultaneous surface preparation, repainting, and inspection operations can be conducted to drastically cut project costs and production schedules. Since the process controls are completely automated and computer controlled, the result is incredibly precise applications of abrasive and/or coatings materials.

At the Canoga Park site, a WallWalker surface scarification module decontaminated the waste storage vault in 14-inch passes at a 1/8-inch removal depth. All hazardous dust and debris was contained by the vacuum seal between the robot and wall surface and immediately conveyed by hose directly into Pentek's self-cleaning and drumming HEPA vacuum and waste collection system, the VAC-PAC. A fully integral radiation measuring device performed pre- and post-decon surveys to permit unrestricted site release for the vault in compliance with regulatory mandates.

Although recently tested for wall decontamination in nuclear applications, the WallWalker has wide applicability in other industries where programmable automation can facilitate tasks such as surface cleaning, painting, window washing, inspection, and surveillance. WallWalker systems can be used for ship hull cleaning and repainting to eliminate workers from dangerous positions and working environments, as well as eliminating the costs for safety precautions and scaffolding. Dry docks, fuel storage tanks, waste storage basins, skyscrapers, and multi-story buildings are other targeted structures. The WallWalker significantly minimized the safety issues associated with elevated work, resulting in reduced workmen's compensation costs and a safer, more profitable work environment. Operations with the WallWalker can be conducted for long hours and in inclement conditions, reducing project schedules, costs for labor and supervision, and indirect and overhead expenses. The wall-scaling robot can transport materials or position elements with great accuracy reducing the number of cranes or lifts at a site.

For more information, contact Pentek, Inc., 1026 Fourth Avenue,



**Pentek's WALL-WALKER Robotic Wall Locomotion System.** Shown fitted with scabbling head and vacuum attachment. Modules for other applications (cleaning, painting, inspection, surveying, etc.) are also available. Photo courtesy of Pentek, Inc.

Coraopolis, PA 15108-1659, phone: (412) 262-0725, fax: (412) 262-0731.

## Minerals Research And Recovery Becomes Universal Minerals

**A**s of January 1, 1997, Minerals Research and Recovery officially changed its name to Universal Minerals, Inc. Waterjet cutting abrasives, including the patented Sharpjet, will continue to be available from Universal Minerals.

For more information, contact Dan Schulse, vice president of sales, at 1-800-528-7086 (ext. 24), e-mail: dans@infop.com.

## Dear Jet News:

The report (*Jet News*, November 1996) on cutting bullet-resistant Kevlar, a material with unusual physical properties, prompts this report on cutting another material, namely Vistanex LM - MH, that also has unique physical properties but which are almost the diametrical opposites of those of Kevlar.

Physically, Vistanex LM - MH is a soft, very viscous (Brookfield Viscosity @ 350°F - 47,500 - 68,500 cps) permanently tacky, clear, pale yellow to water-white semi-liquid.

Vistanex LM - MH (a product of Exxon Chemical, U.S.A.) is a low molecular weight polyisobutylene (typical Flory viscosity average molecular weight = 53,000) characterized by having a straight chain highly paraffinic molecular structure with only terminal unsaturation. Consequences of this structure, which permits close unstrained molecular packing, are inertness, resistance to chemical and oxidative attack and low permeability to air, moisture and gases. It is completely amorphous, non-polar and somewhat elastomeric in character and is soluble in non-polar hydrocarbon solvents.

Vistanex LM - MH is an important ingredient in a wide range of applications. It provides permanent tack in pressure sensitive adhesives, hot melt adhesives, cements and sealants and will adhere even to low-energy surfaces such as polyethylene and glass. Additionally it contributes softness, flexibility, and low permeability characteristics to many formulations in which it is included such as sealants, caulks and wax and asphalt blends. It is used for its adhesiveness and high-temperature stability in a variety of greases and as an oil additive to improve viscosity index. Its low order of toxicity and favorable United States FDA

regulatory position has resulted in its use as a soft, stable ingredient of chewing gum base, for materials incorporated into food indirectly through incidental contact and as a tackifier in surgical adhesives.

In France, Vistanex LM - MH is made available by Exxon in sheets 150 mm thick. However, to use it conveniently in certain formulations, it needs to be dissolved in hydrocarbon solvents. To facilitate this it first must be cut into appropriately sized pieces.

Plain waterjetting proved incapable of cutting through the total thickness of 150 mm and produced the vertical striated pattern, through approximately half the thickness, as shown in Figure 1. The partially cut material then had to be broken by hand which was difficult and very time consuming because of the physical characteristics described above.

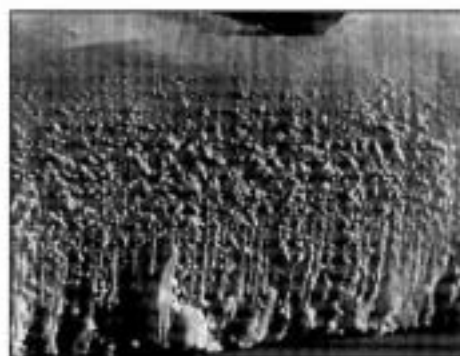


Figure 1

However, using a Type G intensifier, Bourgogne Hydro (address: Rn 6 - ZA Les BLETRY - 71530 CHAMFORGEUIL, FRANCE) was able to readily and completely cut through the 150 mm Vistanex LM - MH, as shown in Figure 2, with a 0.1% solution of SUPER-WATER [R] injected with a DOSATRON INTERNATIONAL DI 16 system. (The cuts are very incisive and no striations are apparent.)

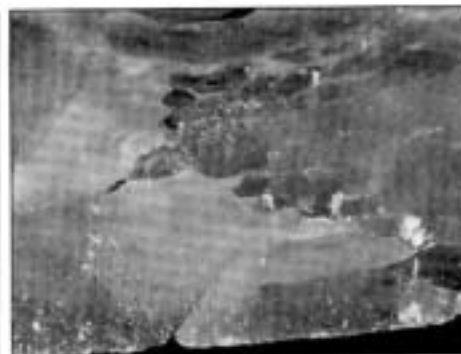


Figure 2

The cutting conditions used were: pressure 3400 bar (48,960 psi), flow rate 2 liters/minute, stand-off distance 5 mm, nozzle diameter 0.3 mm, cutting speed 24 cm/minute.

It should be noted that Super-Water [R] has not received FDA approval for cutting food products. The pictures shown above are included only to show that Super-Water [R] can enhance the cutting of thick, soft, tacky materials.

It is clear from the work on Kevlar and on Vistanex LM - MH, two widely different synthetic materials, that waterjetting can be modified in ways that makes it appear universally applicable for cutting.

Sincerely yours,

Daniel Weber  
Chief Executive Officer  
Weber Lubrifiants  
Post Box 46  
68171 Rixheim, Cedex  
FRANCE  
(Tel. (333) 89 65 40 70)  
(Fax. (333) 89 44 90 06)

Footnote from Berkeley Chemical Research, Inc., supplier of Super-Water [R]. This is a very interesting application of Super-Water [R], and extends its use for cutting "rubber like" substrates. Previously more effective cutting, than with plain water, has been achieved of natural, synthetic, silicone and foam rubber. Large-scale application was successful in the removal of epoxy bound rubber from the Titan (United Technology, California) and Challenger (Morton Thiokol, Utah) space shuttle booster motors.



# Nominations Open For WJTA Board Of Directors

"Nominations for the Waterjet Technology Association (WJTA) Board of Directors are now open," announced Dr. Andrew Conn, secretary of the Waterjet Technology Association.

"With rapid advances in fluid jet technology, the Waterjet Technology Association is growing rapidly. The Association needs dedicated directors to lead the members as the WJTA grows," says Thomas J. Labus, chairman of the 1997 Committee on Nomination. "The duties of the directors are truly challenging and rewarding."

The four-year terms of office of Andrew F. Conn, Ph.D., Mohamed Hashish, Ph.D., Thomas J. Labus, George A. Savanick, Ph.D., David A.

Summers, Ph.D., and Bruce Wood, will expire on August 24, 1997. Therefore, nominations are sought for

six (6) board members, each to serve

(continued on page 14)

## Nominations/Elections Procedures

In accordance with the bylaws of the Waterjet Technology Association, revised in 1993, nominations and elections to the Board of Directors include the following procedures:

- At least two calls for nominations to the board of directors will be published in the *Jet News*. The first call for nominations appears in this issue. **Nominations will be accepted through May 23, 1997.**
- A list of the eligible nominees and a brief biographical sketch for each individual will be published in the June 1997 issue of *Jet News*.
- An official ballot listing the eligible nominees will then be forwarded by mail to all eligible voting members of the Association on July 11. **Signed and executed ballots must be mailed to the Association's office for tallying by August 20, 1997.**
- The names of newly elected board members will be announced on Sunday, August 24, 1997, at the WJTA general membership meeting held in conjunction with the 9th American Waterjet Conference in Dearborn, Michigan.

**Only eligible members of the Waterjet Technology Association may submit a nomination and nominees must be eligible members of the Waterjet Technology Association.**

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## Nominations Open for WJTA Board of Directors, from page 13

a four-year term of office beginning August 24, 1997.

According to the WJTA bylaws, each of the above-named individuals are eligible for re-nomination and re-election to the WJTA Board of Directors.

With regard to all first-time nominees, the WJTA bylaws provide that no more than one of the elected board members may be from the same company or organization. Therefore, board members may not be nominated from facilities that are already represented on the board by individuals whose terms expire in 1999. These facilities include: StoneAge, Inc. (John Wolgamott), Maxpro Technologies (Paul Bowser), HydroChem Industrial Services, Inc. (Pat De Busk), Lydia Frenzel Conference Series (Lydia Frenzel, Ph.D.), University of Rhode Island (Thomas J. Kim, Ph.D.), and NLB Corp. (Forrest Shook).

According to the WJTA bylaws, any WJTA member in good standing (1997 membership dues paid) may submit a nomination(s). Nominees must also be WJTA members in good standing. The deadline for making nominations is at least eight (8) weeks prior to the biennial business meeting scheduled for Sunday, August 24. Your nomination(s) should reach the WJTA office no later than May 23, 1997. To submit a nomination(s), complete the form below and return to:

Thomas J. Labus, Chairman,  
Committee On Nomination  
Waterjet Technology Association  
917 Locust Street, Suite 1100  
St. Louis, MO 63101-1413  
Phone (314)241-1445  
Fax (314)241-1449

**Remember, nominations must  
be received no later  
than May 23, 1997.**

## DataMine Corporation Website

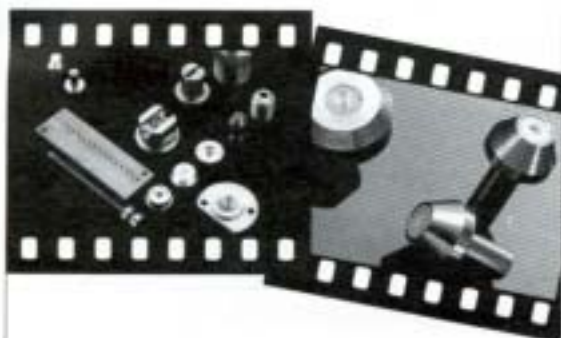
**I**ndustrial cleaning information is offered at [www.paydirt.net](http://www.paydirt.net). DataMine Corporation introduces PayDirt DataMine™, an interactive information and research service developed by experienced professionals to meet the specific needs of individuals in the Industrial/Environmental Clean-Up business. PayDirt DataMine™ contains the knowledge of engineers, lawyers, economists, publishers, writers, industrial hygienists, safety professionals, accountants, buyers and more. A special feedback service handles subscriber requests for specific information to be researched and included in PayDirt DataMine™.

This unique website also features classified ads, online meeting rooms, a Q&A Bulletin Board, subscriber discounts and special offers, and vendor and product resources.

### Nomination Form

Name Of Nominee _____		Title _____	
Address _____			
City _____	State _____	Country _____	Postal Code _____
Telephone _____			
In US/Canada (_____) _____		Outside US/Canada [_____] (_____) _____	
<small>(area code)</small>		<small>[country code] (city code)</small>	
Fax _____			
In US/Canada (_____) _____		Outside US/Canada [_____] (_____) _____	
<small>(area code)</small>		<small>[country code] (city code)</small>	
<i>Attach biographical information with a brief statement of your nominee's mission and vision for WJTA.</i>			
Name Of Nominator _____		Title _____	
Address _____			
City _____	State _____	Country _____	Postal Code _____
Telephone _____			
In US/Canada (_____) _____		Outside US/Canada [_____] (_____) _____	
<small>(area code)</small>		<small>[country code] (city code)</small>	
Fax _____			
In US/Canada (_____) _____		Outside US/Canada [_____] (_____) _____	
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**The Waterjet Technology Association's  
9th American Waterjet Conference  
August 23-26, 1997  
Hyatt Regency, Dearborn, Michigan**

***Preliminary Schedule of Events***

**Saturday, August 23**

- 8:30 a.m.-Noon Short Course on the Fundamentals and Applications of Waterjet Technology
- Noon-1:30 p.m. Luncheon for "Short Course" Participants
- 1:30 p.m.-4:30 p.m. Short Course (continued)
- 6:30 p.m.-9:30 p.m. Welcoming Reception In The Exhibit Hall -- Exhibit Opens

**Sunday, August 24**

- 8:00 a.m.-11:00 a.m. Applications Workshops
- 8:30 a.m.-11:30 a.m. Research & Development Sessions
- 9:30 a.m.-5:00 p.m. Exhibits
- Noon-2:00 p.m. Awards Luncheon
- 2:30 p.m.-4:30 p.m. Applications Workshops (continued)
- 5:00 p.m.-6:00 p.m. WJTA Biennial Business Meeting

**Monday, August 25**

- 9:30 a.m.-2:30 p.m. Exhibits
- 8:00 a.m.-11:00 a.m. Applications Workshops
- 8:30 a.m.-11:30 a.m. Research & Development Sessions
- Noon-2:00 p.m. Luncheon in Exhibit Hall
- 2:00-4:30 p.m. Applications Workshops (continued)
- 2:00-5:00 p.m. Research and Development Sessions (continued)
- 6:30 p.m. - 11:00 p.m. Social Function

**Tuesday, August 26**

- 9:30 a.m.-3:00 p.m. Technical Tour and Field Demonstrations

**New Equipment Financing Program**

**F**low International Corporation has announced the formation of a new equipment funding program, Flow Financial Services (FFS), to provide FLOW customers with a broad array of financial packages for acquisition of waterjet and abrasive waterjet machines.

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"FFS eliminates financing as an impediment to owning a waterjet," said Jeff Levy, vice president of marketing. "For entrepreneurial job shop owners, one of the key target markets for waterjet equipment, this is a definite plus. We anticipate strong demand for waterjet machines as financing options make them more affordable than ever before.

For more information, contact Flow International, 23500 64th Avenue South, Kent, WA 98032, telephone: (206)850-3500, fax: (206)813-3285.

**WJTA New Members**

**Corporate**

**Ceda-Reactor Ltd.**

*Dave Whitlock  
Brian Fitzmaurice  
Dan Richards  
Alberta, Canada*

**Hughes Hydrocleaning**

*Sharon Hughes  
Daniel Coyle  
Kalgoorlie, Australia*

**Individuals**

**Bill Birchler**

*A Glass Act  
Ashburnham, MA*

**Donald Dagen**

*Concurrent Technologies  
Gales Ferry, CT*

**Lynn McLaughlin**

*Dow Chemical  
Gales Ferry, CT*

**Theresa Riesenber**

*Advanced Machinery  
Pt. Dodge, IA*

**Steve Robinson**

*OHE Aquamax Solution  
Wellington, New Zealand*



## WJTA 1997 Conference Hotel: Hyatt Regency Dearborn, Michigan

The Hyatt Regency Dearborn, site of the 1997 Waterjet Technology Association Conference, offers excellent service and accommodations.

A 16-story atrium towers over the garden lobby at the hotel entrance. Hotel rooms and suites are luxuriously appointed. Specially designed business plan rooms come equipped with everything you need to increase business productivity.

Four restaurants offer everything from casual classics to the cuisines of Japan, France and Italy. The revolving rooftop lounge offers spectacular panoramic views and is an ideal spot to relax.

An indoor pool, a sauna, and a whirlpool and a fully equipped exercise facility are also available.

Make your hotel reservations early to take advantage of the special WJTA Conference rates. Use the convenient form below, or call the Hyatt reservation system toll-free at 1-800-233-1234, or dial the Hyatt Regency Dearborn direct at (313)982-6880. Be sure to request the special group rate for the 1997 WJTA Conference.

### Dearborn, Michigan Sites To See During Your Stay

- The Fairlane Town Center Shopping Mall, located directly across from the Hyatt, features over 230 specialty shops, stores and restaurants, five major department stores, and ten movie theatres.
- Greenfield Village, where over 240 of America's most treasured buildings are preserved in pristine condition, including Thomas Edison's laboratory, Noah Webster's home, Firestone's farm and the Wright Brothers Bicycle Shop.
- The Henry Ford Museum, where hundreds of antique automobiles and thousands of 19th and 20th century machines are on display.

## WJTA 9TH AMERICAN WATERJET CONFERENCE HOTEL RESERVATION FORM

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August 23- 26, 1997

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*Reservation requests are based upon availability at time of arrival.*

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Check-in: 3:00 p.m. Check-out: 12 Noon

**Please note:** A \$25.00 departure charge fee will be incurred if there are any changes to the departure date after check-in.

To guarantee convention rates, reservations must be received by the Hyatt Regency Dearborn by **August 2, 1997.**

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## Calendar Of Events

**May 10-16, 1997:** American Society for Surface Mining and Reclamation 14th Annual Meeting, Austin, Texas. For more information, contact the North American Coal Corporation, 14785 Preston Road, Suite 1100, Dallas, TX 75240, fax: (214)387-1051.

**October 28-30, 1997:** Cerasia '97, Asia Pacific Exhibition For Ceramics, Stone And Bathroom Fittings. Contact: Cerasia UK: Paragon Exhibitions Ltd., Brook House, Yoxall Road, Newborough, Burton-on-Trent, Staffordshire, DE13 8SU, England, Tel: +44 (0) 1283 575564, Fax: +44 (0) 1283 575622.

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