

# InfraStructures

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PUBLISHER / ÉDITEUR

**Jean-François Villard**

COLLABORATORS

**Jacques Duval**

**Marcel Tremblay**

**Jean-François Dubois**

ADVERTISING SALES

MONTRÉAL

**Jean-François Villard**

**André Charlebois**

QUÉBEC

**Gilbert Marquis**

**(418) 651-1176**

TELEPHONE

**(514) 233-1295**

**(514) 598-5752**

FAX

**(514) 528-9932**

MAILING ADDRESS

**PO Box 366 - Stn DeLorimier**  
**Montreal (Quebec) H2H 2N7**

E-MAIL

**editor@infrastructures.com**

INTERNET

**www.infrastructures.com**

THIS ELECTRONIC VERSION OF INFRASTRUCTURES IS MADE AVAILABLE FOR THE SOLE PURPOSE OF GIVING OUR ENGLISH SPEAKING READERS A TASTE OF THE ORIGINAL PRINTED VERSION OF THE MAGAZINE.

WE WILL TRY TO PUBLISH AS MUCH OF THE EDITORIAL CONTENT OF THE PRINTED VERSION AS POSSIBLE GIVEN THE TECHNICAL LIMITATIONS.

## Welcome

Throughout its eight years of serving the French speaking users of heavy machinery and specialized equipment in Canada, InfraStructures has established itself as the most acknowledged reference in its field. All other magazines have a different scope or focus. None offer a better mix of local content, important industry news, good circulation and reasonable rates for both readers and advertisers.

As you may know, our next major step for 2005 is in the making: an English print version of InfraStructures – distributed by mail across Ontario and the Maritimes. If you are interested in receiving the English print version of InfraStructures next year, please send us your coordinates by mail or e-mail.

For the year 2004, issues of the English online version will feature more content than last year. We encourage you to send in your news releases and articles which we will gladly publish free of charge.

Finally, we offer a great advertising package: Buy space in our French print version and get published in the English online version free of charge. Please call us to discuss your advertising plans in detail.



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On the front cover : A Larue 3640 Hydrostatic detachable snowblower used by the borough of Saint-Laurent, Montreal, to load snow after the first two big snowfalls that hit the region last December.

# In the News...

## NEW DIESEL EMISSION LIMITS TO BE TOUGHEST IN NORTH AMERICA

Ontario will have the toughest emission limits in North America for large diesel trucks and buses when new standards take effect next April, Environment Minister Leona Dombrowsky announced last December.

"With these new standards, we will be identifying more dirty vehicles and ordering

them cleaned up. The result will be cleaner air and healthier communities," Dombrowsky said.

The new limits apply to all large school buses, regardless of age.

The minister also announced that heavy-duty diesel vehicles which voluntarily achieve a very low emissions level will be allowed to have tests every two years, instead of each year. An anti-idling strategy will also be developed for large trucks and buses.

The Ontario School Bus Association, the Ontario Trucking Association and Pollution Probe were consulted on, and strongly support, the new measures.

The heavy-duty diesel standards, which limit the amount of particulate matter (PM) in exhaust emissions, will be tightened in two stages, on April 1, 2004 and April 1, 2005.

Between 2000 and 2002 Drive Clean resulted in a reduction of nearly 1,100 tonnes of particulate matter from heavy-duty vehicles.

Sixteen jurisdictions in Canada and the United States, including Ontario, have some type of heavy-duty vehicle (HDV) emissions testing program. Ontario's emissions standards for heavy-duty diesel trucks and buses will be the strictest in North America. As well, Ontario will be only one of only five jurisdictions that combine both periodic testing and random roadside inspection.

The other jurisdictions with HDV programs are: Arizona, California, Colorado, Connecticut, Illinois, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Ohio, Utah, and Washington.

A recent independent analysis of the program determined that it had reduced particulate matter (PM) from heavy-duty diesel vehicles registered in Ontario by nearly 1,100 tonnes from 2000 through 2002, almost twice the program target of 660 tonnes.

New diesel standards limit the particulate matter (PM) in exhaust emissions. PM, a major constituent of smog, is emitted by diesel vehicles largely as a result of unburned fuel. Heavy-duty diesel vehicles contribute over 50% of the PM from transportation sources, of which 85 to 90% is microscopic PM2.5, the tiniest particles that are readily absorbed by human respiratory systems. PM is linked to asthma and other respiratory illnesses, as well as cardiovascular illnesses.

The emissions of diesel-powered HDVs registered anywhere in Ontario must be tested annually for opacity, a measurement of the amount of light that can be blocked by PM in the exhaust emissions. Current standards allow 55% of the light to be blocked by the exhaust of vehicles that are 1990 models or older and 40% by those that are model year 1991 and newer. New and cleaner diesel engine technology was introduced in 1991, which is why that year has been set as a dividing line for the standards.

Ontario has been applying the North American standards in its diesel opacity tests but has found that well-maintained

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Source: Ministry of the Environment

**SNC-LAVALIN SIGNS EPCM CONTRACT TO DEVELOP GOLD MINE IN SAUDI ARABIA**

SNC-Lavalin Group Inc. is pleased to announce that the Saudi Arabian branch of its subsidiary, SNC-Lavalin Europe BV, has just signed a contract to develop the Al-Amar Mine in Saudi Arabia.

The US \$8.3 million contract was signed with the Saudi Arabian Mining Company (Ma'aden) to provide engineering, procurement and construction management services for the development of the mine project, located near the town of Al-Quway'iyah to the south west of Riyadh. Once completed, the Project will be used for commercial production, including mineral processing facilities and infrastructure.

"We are very pleased to be working with Ma'aden on this important initiative for Saudi Arabia's mining industry," said Pierre Duhaime, Executive Vice-President, SNC-Lavalin Group Inc. "The contract clearly reflects Ma'aden's recognition of our world class expertise in gold mining. In addition, we are very familiar with the mine's geological landscape, since it closely resembles mining regions where we have already worked in Northern Ontario and Quebec."

Construction of the concentrator, which will produce silver, zinc and copper in addition to gold metal, is expected to be completed at the end of 2005. Commercial start-up is expected in early 2006.

SNC-Lavalin's contract will be carried out by approximately 25 employees from the Mining and Metallurgy division in Montreal, and from its office in Al-Khobar.

**SNC-LAVALIN SIGNS FEASIBILITY STUDY AGREEMENT FOR PHOSPHATE PROJECT IN SAUDI ARABIA**

SNC-Lavalin Group Inc. is pleased to announce that its subsidiary, SNC-Lavalin Europe BV Branch, in a consortium with a subsidiary of Jacobs Engineering Inc., has signed an agreement to carry out a US \$9.4 million (CAN \$12.2 million) feasibility study of the Al-Jalamid Phosphate Project in Saudi Arabia.

The study will be carried out for a consortium made up of Ma'aden-Saudi Arabian

Mining Company and Saudi Oger Ltd., and will involve the development of the Al-Jalamid phosphate resource area.

"SNC-Lavalin was a perfect fit for this contract, given our expertise in phosphate mining and processing, chemicals and construction management," said Pierre Duhaime, Executive Vice-President, SNC-Lavalin Group Inc. "SNC-Lavalin's ability to offer clients a wide range of complementary expertise, anywhere in the world, is one of our key strengths. In

this case, our Brussels, Montreal and Toronto affiliates will each be making an important contribution."

In addition to processing facilities, including a mineral processing plant, phosphoric and sulphuric acid plants, a diammonium phosphate (DAP) plant and infrastructure, the study will involve field testing, environmental impact assessment, workforce organization definition, and economic and financial market evaluation. The study is expected to be

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completed by early 2005.

**SNC-LAVALIN SUBSIDIARY TO DESIGN & CONSTRUCT THERMAL POWER PLANT IN IRELAND**

SNC-Lavalin Group Inc. is pleased to announce that its subsidiary, SNC-Lavalin Constructors Ireland Limited, has just signed a contract with Aughinish Alumina Limited (AAL) of Ireland to provide engineering, procurement and construction (EPC) for a

thermal power plant to be constructed near the City of Limerick. AAL is a subsidiary of Glencore International AG of Switzerland.

The (euro) 86 million contract is for a nominal 150 MW combined heat and power plant consisting of two General Electric 6FA gas turbine generators and two single pressure heat recovery steam generators to develop process steam for AAL's alumina production facility.

"This project will provide much needed

power into Ireland's electricity grid, as well as power and process steam to the Aughinish Alumina facility," said Klaus Triendl, Executive Vice-President, SNC-Lavalin Group Inc. and President of SNC-Lavalin International Inc. "Our proven expertise in thermal power engineering and construction was clearly recognized by our client's selection of our thermal business unit. We are very pleased with this opportunity to work with Aughinish Alumina."

"Once this new state of the art high efficiency gas-fired cogeneration facility is in operation, Aughinish Alumina will be able to reduce operations of older oil-fired boilers, and thus reduce emissions," said John Gillis, Chief Operating Officer, SNC-Lavalin Constructors Inc., SNC-Lavalin's thermal business unit in Redmond, Washington, USA.

Work on the new power plant is expected to get underway on site in April 2004. It is expected to go into commercial operation in December of 2005.

**SNC-LAVALIN/FOSTER WHEELER JOINT VENTURE AWARDED CONTRACT IN NEW CALEDONIA**

SNC-Lavalin Group Inc. is pleased to announce that its wholly owned subsidiary SNC-Lavalin Australia Pty Ltd. in a joint venture with Foster Wheeler (Qld) Pty Ltd. has been awarded a contract by Goro Nickel SA to carry out certain engineering, planning and related activities as part of the Phase 2 review of the Goro Nickel Project in New Caledonia. The joint venture is known as the CEG Joint Venture.

The estimated AU\$53 million (US\$39.5 million) joint venture contract just signed covers the second phase, or Phase 2, of a comprehensive re-examination of the Project initiated by Inco. This phase is already underway, and will include establishing a project cost control estimate, an updated schedule for the Project and optimized and clearly defined scope and execution plan. One of the critical objectives of this phase is the identification of value improvement measures and more detailed engineering to optimize project capital costs.

"We are very pleased with this latest recognition by Inco of our long and successful working partnership," said Pierre Duhaime, Executive Vice-President, SNC-Lavalin Group Inc. "We bring significant expertise in terms of nickel mining and metallurgy processing to this important Project. In addition, we are particularly well positioned to meet our

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client's needs, and work with the local community, as a result of earlier contracts carried out by SNC-Lavalin companies on the Goro site in 1995 and 1998."

"This is a very exciting project for Foster Wheeler, not only because of its scope, but also because its location is in a region where we continue to build on our reputation for project execution excellence," said Mike Beaumont, director of project operations for Foster Wheeler Energy Limited. "The mining and minerals sector presents new opportunities for our company, and on the Goro site we will be able to demonstrate our wealth of project management and execution skills, which have been so well-utilized in the oil and gas, chemical, refining, power and pharmaceutical industries."

Robin Marshall, Project Director for Goro Nickel SA said, "Foster Wheeler and SNC-Lavalin have the experience of successfully executing projects taking environmental concerns into consideration. In this, and many other regards, we were very impressed with Foster Wheeler's and SNC-Lavalin's credentials. We are confident that this joint venture will deliver a plan for a project that will be economically feasible and which can be implemented in a financially prudent manner."

Services provided by the CEG Joint Venture under this contract will be delivered from the offices of Inco Australia Management in Brisbane, Australia.

New Caledonia is a French overseas territorial community (Collectivité territoriale). The Goro site is on the south coast of New Caledonia approximately 60 km southeast of the capital Noumea.

Source: SNC-Lavalin

#### ENGINEERING SERVICES INDUSTRY STATISTICS FOR 2002

The engineering services industry generated \$10.87 billion in operating revenues in 2002, up 4.0% from 2001. Fee income amounted to \$8.12 billion, representing three quarters of operating revenues. The industry's operating profit margin slightly improved to 10.9%.

Market share of the 20 largest firms increased to 35% of revenues in 2002, up from 30% in 2001. This segment is dominated by international players while the remainder of the industry is comprised mainly of small privately-held and Canadian-owned entities.

Revenues for firms in Alberta rose 13.8% in 2002, placing Alberta ahead of Quebec

and second only to Ontario. In recent years, Alberta has closely trailed Quebec after narrowly surpassing it for the first time in 1999. Ontario recorded meagre growth of 0.7% and British Columbia contracted 1.7% after an exceptionally good year in 2001.

Engineering services firms operating in Ontario had a market share of 35%, followed by those in Alberta (24%), Quebec (22%) and British Columbia (13%).

Canadian engineering firms have had a

longstanding global reach. In 2002, foreign fee income accounted for 12.0% of operating revenues, amounting to \$1.30 billion compared with \$1.08 billion in 2001. The less-than-favourable market conditions in the United States and Europe were more than offset by a surge of exports to Africa and other regions. More than half (57%) of the foreign fee income was generated from countries other than the United States.

Engineering services accounted for 0.5%

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of the Canadian economy in 2002, contributing \$5.88 billion to gross domestic product. This industry is comprised of establishments primarily engaged in applying principles of engineering in the design, development and utilization of machines, materials, instruments, structures, processes and systems.

Source: Statistics Canada,  
CANSIM: table 360-0005

### DEVON SELLS CHEROKEE COALBED METHANE PROJECT

Devon Energy Corporation announced last December that it has agreed to sell its Cherokee coalbed methane project in southeast Kansas and northeast Oklahoma. The sale price of \$126 million is approximately equal to Devon's net investment in the assets. Devon and the purchaser, Quest Resource Corporation, expected to close the transaction on December 22, 2003.

Quest will receive approximately 330 producing wells, some 200 miles of gathering pipelines and interests in approximately 375,000 leasehold acres. As of December 31, 2002, Devon's Cherokee coalbed methane operations included estimated proved reserves of approximately 109 billion cubic feet of natural gas, of which 58% were classified as proved producing. The wells currently produce approximately 20 million cubic feet of gas per day. Devon owns a 100% working interest in these properties.

Devon will continue to own and operate 41,000 acres in the Arkoma basin in central Oklahoma that are not being conveyed to the purchaser. This acreage produces from a conventional formation and also holds potential for coalbed methane production.

The transaction is subject to regulatory approvals, purchaser due diligence and other customary conditions to closing. The sale price is subject to typical post-closing adjustments. Should the transaction fail to close after all closing conditions are satisfied, Devon is entitled to retain a \$5 million earnest money deposit.

Source: Devon Energy Corporation  
[www.devonenergy.com](http://www.devonenergy.com)

### ALCAN ACQUIRES ENTIRE INTEREST IN ALUMINIUM DUNKERQUE

On December 30, 2003, Alcan acquired the remaining 65% stake in the Aluminium Dunkerque smelter, located in Dunkerque, France, from the smelter's financial partners. This follows the agreement to acquire announced on July 9, 2003 by Pechiney, owner of 35 per cent of the Aluminium Dunkerque smelter and now an Alcan subsidiary.

The acquisition, including all of the shares and subordinated loans owned by the financial partners, was made for 248 million euros. The transaction also resulted in the consolidation by Alcan of an additional 112 million euros in debt, on December 30, 2003.

Aluminium Dunkerque's annual production capacity is 250,000 tonnes. "This acquisition adds an excellent primary aluminium asset to Alcan's global capacity," said Travis Engen, President and CEO of Alcan.

Source: Alcan Inc.

### CANAM MANAC GROUP AND WALTERS SECURE \$25,000,000 CONTRACT AT TORONTO PEARSON AIRPORT

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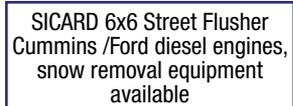
VOHL DV904, (1) 1981, telescopic chute, Allis Chalmers engine, (3) 1986 Detroit engine



(4) VOHL VDV4000, detachable snowblowers, telescopic chute, John Deere engine



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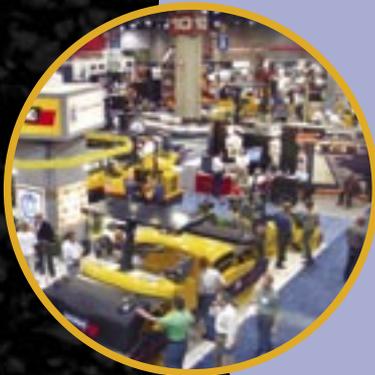
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Walters, a steel fabricator based in Hamilton, Ontario, announced it had been awarded a contract of over \$25,000,000 for stage two of the Greater Toronto Airports Authority terminal project development at the Toronto Pearson Airport.

PCL/Aecon Construction Management awarded Structural Walters the contract based on its engineering, detailing and fabrication experience as well as its ability to work together with all teams involved to define "best practice solutions."

Construction of the third pier of the new Terminal 1 will cover 470,000 square feet. Fabrication for the contract will be equally shared between Canam Manac and Walters. Deliveries are scheduled to begin in Novem-

ber 2004 and end in July 2005.

Marc Dutil, Canam Manac's President and Chief Operating Officer, said that Canam Manac's expertise in the area of large-scale and complex projects was a deciding factor in securing the contract.

Source: The Canam Manac Group Inc.

**ALFA LAVAL RECEIVES SIGNIFICANT ORDER FOR SLUDGE TREATMENT IN CANADA**

Alfa Laval, a world leader in centrifugal separation, heat transfer and fluid handling, has received, from the Regional Municipality of Peel, the largest single Canadian contract for sludge treatment equipment. The Municipality controls all municipal waste from the western Greater Toronto Area.

The contract includes delivery of five decanter centrifuges for dewatering of the sludge and five thickening units for sludge volume reduction. The equipment is to be installed in a new facility of the Lakeview Wastewater Treatment Plant's property in the City of Mississauga.

The entire Lakeview plant is being expanded to handle the increased flow of municipal waste from neighbouring areas as well as from the Greater Toronto Area. Currently, Lakeview is one of the few major Canadian wastewater treatment plants incinerating the bio-solids directly after solids dewatering.

The decision to choose centrifugation instead of other thickening and dewatering technologies was the result of more than 3 years of investigation by two major North American engineering consultants employed by the Region of Peel.

"This is a gratifying contract that further strengthens Alfa Laval's leading position in the challenging area of waste water treatment, comments Ulf Granstrand, Executive Vice President and head of Process Technology Division. "Wastewater treatment is a growing market and increasingly stringent environmental legislation will continue to drive the business".

Alfa Laval offers a complete product range covering the entire sludge treatment process: decanter centrifuges for thickening and dewatering, spiral heat exchangers for heating and dryers. Recently, the company also launched pioneering software that greatly reduces operating costs at wastewater treatment plants.

Alfa Laval is a leading global provider of specialized products and engineering solutions based on its key technologies of heat transfer, separation and fluid handling.

The company's equipment, systems and services are dedicated to assisting customers in optimizing the performance of their processes. The solutions help them to heat, cool, separate and transport products in industries that produce foods and beverages, chemicals and petrochemicals, pharmaceuticals, starch, sugar and ethanol. Alfa Laval's products are also used in power plants, aboard ships, in the mechanical engineering industry, in the mining industry and for wastewater treatment, as well as for comfort climate and refrigeration applications.

Source: Alfa Laval, [www.alfalaval.ca](http://www.alfalaval.ca)

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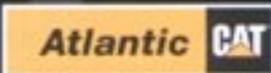


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**GL&V STRENGTHENS ITS POSITION IN THE NORTH AMERICAN AND SOUTH AFRICAN MINING MARKETS**

Groupe Laperrière & Verreault Inc. announced two new strategic acquisitions for its Process Group (DORR-OLIVER EIMCO) in its primary market: ore extraction and processing equipment.

GL&V acquired certain assets of Innovative Flotation CC., a company headquartered near Johannesburg, South Africa with current sales

of about \$1 million annually. Founded in 2001, this business has experienced rapid growth by specializing in the design and manufacture of flotation cells targeted mainly to the platinum industry. It owes its success to the expertise of its two founders, who have joined GL&V's team. "GL&V ranks among the world's leading suppliers of flotation cells used to recover metals and minerals. This acquisition strengthens our portfolio of technologies by adding an alternative, proven solution,"

indicated Laurent Verreault, Chairman of the Board, President and Chief Executive Officer. "It also consolidates our positioning in South Africa, where we already benefit from a large installed base of DORR-OLIVER and EIMCO equipment." Mr. Verreault added that South Africa has a major mining industry, especially in the growing sector of precious metals such as gold and platinum.

GL&V also acquired certain assets of the 3-H Mining division of SOI Holding Company, Inc., located in the Pittsburgh, Pennsylvania area. For over 40 years, 3-H Mining has been a leading U.S. manufacturer of mine shaft machinery and underground ore extraction equipment, a market also served by GL&V with a line of DORR-OLIVER products. "The acquisition of this former competitor makes GL&V an important North American supplier in this market niche, where demand is expected to grow as metal prices firm up," says Laurent Verreault. "More specifically, it enhances annual sales by approximately \$1 million and increases our potential in the spare parts market. Moreover, as the acquired business will be easily integrated with our Orillia, Ontario operations, it offers good potential for return on investment."

**GL&V AWARDED A MUNICIPAL WATER TREATMENT PLANT IN RUSSIA**

Groupe Laperrière & Verreault Inc. is pleased to announce that its Process Group (DORR-OLIVER EIMCO) has achieved a significant breakthrough in the international municipal water treatment market by landing a \$4.5 million contract to supply a complete sedimentation system to a Scandinavian consortium dedicated to build, own and operate a new sewage treatment plant in South West Saint-Petersburg, Russia. During the second and third quarters of fiscal 2004, GL&V will deliver 12 clarifiers along with four sludge thickening systems, and will also be responsible for the on-site supervision of the equipment's installation.



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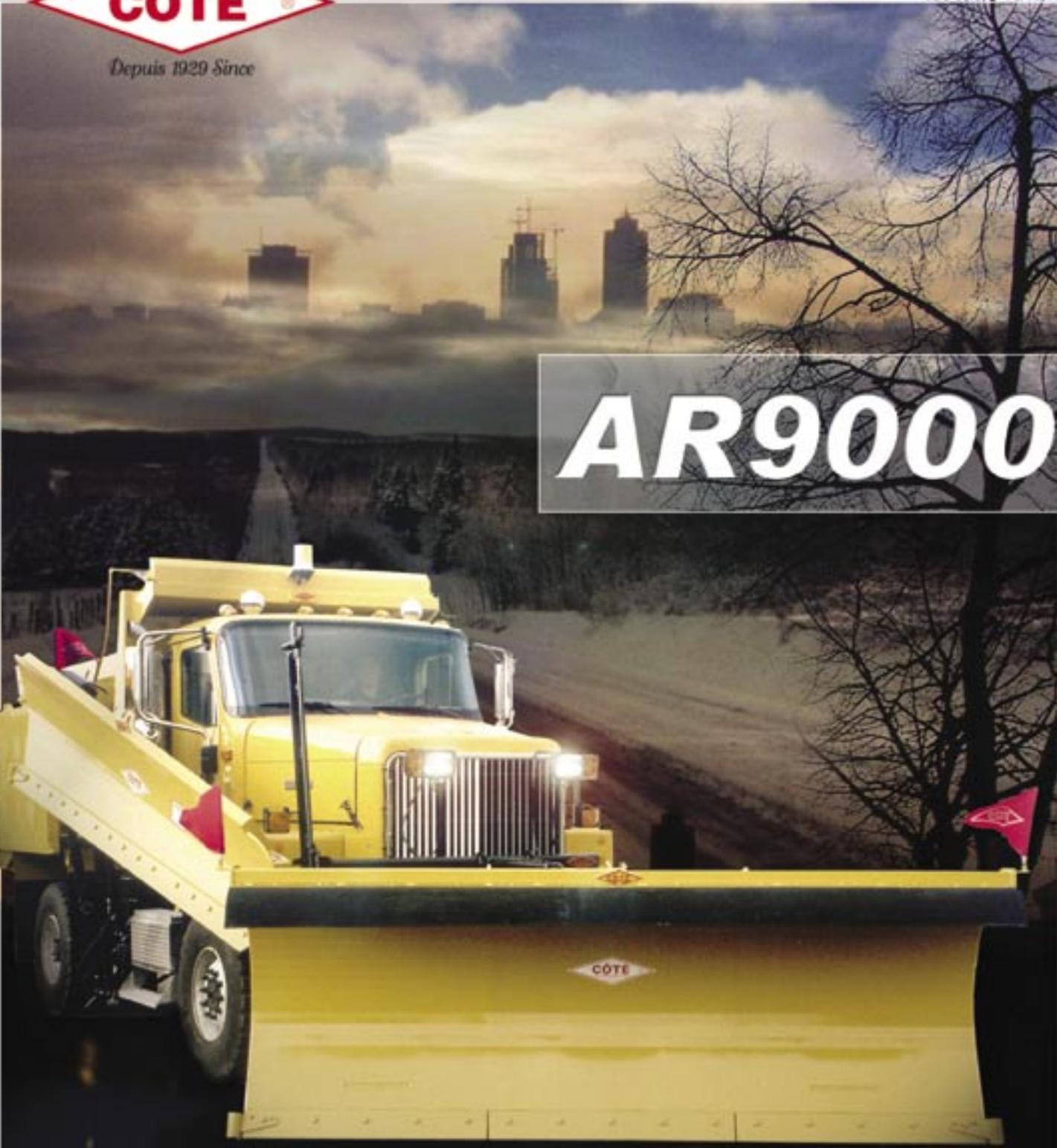
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"Backed by foreign capital, Russia has just embarked on a major industrial infrastructure development and upgrading phase, which is creating attractive opportunities for several of our technologies," stated Richard Verreault, Executive Vice-President and Chief Operating Officer of GL&V.

To accelerate its growth in this promising market, GL&V has set up a separate entity EIMCO Water Technologies, dedicated to the development and management of the Company's assets in the municipal and industrial water sector. "In operation since the beginning of 2004, this entity's mission is to accelerate our growth in the water treatment market by acquiring established businesses and entities equipped with cutting-edge technologies, as well as by taking advantage of our international network to develop the water treatment market in certain foreign countries," pointed out Laurent Verreault, Chairman of the Board, President and Chief Executive Officer.

Since the acquisition of EIMCO in November 2002, water treatment has become one of GL&V's most promising markets, considering the hundreds of billions of dollars to be

invested in this area in the coming years in North America and elsewhere in the world. Regrouping DORR-OLIVER's and EIMCO's technologies has provided GL&V with an expertise of over 100 years in this field. Today, its technological portfolio positions GL&V to supply new equipment (as is the case for the Saint-Petersburg order), complete or partial upgrading of existing municipal facilities, spare parts and after-sales services.

For the current fiscal year ending March 31, 2004, GL&V expects to achieve revenues of some \$90 million in the water treatment market.

Source: Groupe Laperrière & Verreault Inc.

#### **RITCHIE BROS. AUCTIONEERS ACQUIRES LEBLANC AUCTION SERVICE**

Ritchie Bros. Auctioneers Incorporated announces the completion of the acquisition of the auction business of LeBlanc Auction Service Ltd., an Estevan, Saskatchewan-based auctioneer of agricultural equipment and land. This acquisition is part of an initiative intended to further establish Ritchie Bros.' presence in the used agricultural equipment and land markets in Saskatchewan, Canada.

Jason LeBlanc, Auctioneer and General Manager of LeBlanc Auction Services, now heads Ritchie Bros.' agricultural operations in Saskatchewan.

Terms of the transaction will not be disclosed, although management considers the size of this acquisition to be non-material relative to the Company's consolidated operations.

According to Randy Wall, President and COO of Ritchie Bros.: "the addition of the LeBlanc group will enable us to expand our agricultural operations into Saskatchewan. We look forward to working with customers in Saskatchewan and providing them access to our global marketplace."

Source: Ritchie Bros. Auctioneers Inc.  
www.rbauction.com

#### **HIRSCHMANN SOLD TO HGCAPITAL**

Düsseldorf-based Rheinmetall AG has sold Hirschmann Electronics GmbH & Co. KG, Neckartenzlingen, to leading European private equity investor, HgCapital, as of December 31, 2003. The transaction, which is subject to approval from the authorities is in the form of an MBO by Hirschmann

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Electronics management. The price paid including the takeover of liabilities is 115 million Euros.

Following the November 1, 2003 sale of the Preh Group, Bad Neustadt, to Deutsche Beteiligungs AG, the Hirschmann transfer is the final step in the divestment of Rheinmetall's electronics group, allowing it to focus on its core businesses: Automotive (Kolben-schmidt Pierburg) and Defence (Rheinmetall DeTec).

In fiscal 2003, the Hirschmann Group, which employs a workforce of around 1,750, generated sales of over 280 million Euros. An electronics specialist, Hirschmann is an internationally successful player in the markets for car communication systems, multimedia electronics, automation & network solutions, and electronic control systems for construction machinery (PAT Group).

HgCapital, which has offices in London and Frankfurt, has now completed four acquisitions within the German market during the last fourteen months, all within the automotive industry. HgCapital focuses on companies with enterprise values ranging from 40 million to 400 million and specialises in the following industry sectors: industrials, media, consumer, healthcare, technology and leisure.

Source: Hirschmann Electronics GmbH & Co. KG  
www.hirschmann.com

## The 500th Shuttle Buggy Rolls Out of Manufacturing

Roadtec Inc. reached an important milestone when the 500th Shuttle Buggy rolled out of the company's factory.

The Shuttle Buggy has revolutionized the paving industry

by giving contractors the ability to meet smoothness levels that were previously unattainable. As a mobile surge bin, the Shuttle Buggy receives mix from the haul truck, then remixes the material with a triple-pitch anti-segregation auger, before delivering to the paver hopper. This enables the paver to run non-stop and with no contact from the delivery vehicle. Temperature and aggregate segregation are eliminated, allowing maximum density and compaction. The benefit is the smoothest road possible, and smooth roads last longer, are cheaper to maintain, and reduce costs on maintenance to your vehicle.

Roadtec manufactures a full line of roadbuilding machinery including cold planing and recycling equipment, material transfer vehicles, and asphalt pavers.

Source: Roadtec Inc.



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# Prix d'Excellence Awarded to DJL Construction

The *Excellence perfectionnement - FFIC* award has been awarded to DJL Construction during the 60th annual meeting of the ACRGTQ, Quebec's association of roadbuilders and constructors.

Yves Paré, president and general manager of the FFIC, construction industry workers funds for training, underlined the significant implication of DJL Construction in promoting improvements within the sector civil engineering and roadway system by handing over the award.

The selection committee chose DJL Construction for the numerous activities of improvement for its workers carried out by the company.

DJL Construction is a well-recognized leader in Quebec's infrastructure industry.

As a general contractor, DJL provides a multitude of specialized products and services in the civil engineering environment.

With its own network of quarries, sand and gravel pits as well as numerous asphalt manufacturing plants, it has the means to



(From left to right): Jean-Marc Jacob, agent for training promotion, ACRGTQ, Julie Laforce, training counsellor, Construction DJL inc., François Voisine, human resources manager, Construction DJL inc. and Yves Paré, president general manager, FFIC. (Photo : ACRGTQ)

supply customers with everything from raw materials to advanced technology products.

For over 60 years, ACRGTQ has been representing the majority of suppliers and

contractors involved in roadbuilding, civil engineering and energy related construction projects.

Source: ARGQTQ, www.acrgtq.qc.ca



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## Newly Designed Website for IPEX

IPEX is setting another industry precedent to reach its customers in a faster and more efficient way. The site, which features both English and French content, provides ample information on IPEX and all its products across its geographical markets including Canada, the United States and Mexico.

Users can perform in-depth searches across all IPEX business on this new website. Just click on municipal, electrical, industrial, mechanical, plumbing and radiant heating markets for additional information.

“Besides its innovative new look and user-friendly design, the new website offers users a comprehensive learning tool of our place in the industry,” says Joachim Ravoth, Marketing Manager. “We are confident that our current customers and potential ones will find everything they’re looking for and more.”

Source: IPEX Inc.  
www.ipexinc.com

## A Third Palfinger Crane for Bellai & Frères

Bellai & Frères, the largest contractor of formwork of the Ottawa-Hull region, recently took possession of the largest articulated crane used for formwork in operation in the area. The crane, a Palfinger PK40002, was bought and installed at Ottawa Equipment & Hydraulic Inc (OEH) workshop on street Edinburgh Street. The crane is equipped with aboom which permits a range of 71 feet at zero degree and a lifting capacity of one ton.

The crane was installed on a Mack tandem/tandem chassis. The crane moves on a ball bearing rather than a rack and pinion system, which dissociates it from competing brands. The crane is equipped with four stabilizers in order to allow operation in complete safety. The truck is also equipped with a 22 feet long platform which allows the loading of 22 form cages.

In business in the greater Ottawa-Hull area for over 12 years, OEH has ensured the distribution maintenance and repair for all kind of specialized equipment. The company now distributes Alliance concrete pumps, Palfinger cranes and handling systems, Manitou machines, Yanmar construction equipment and Komatsu lift trucks.

Source: Ottawa Equipment & Hydraulic Inc.,  
1-877-707-4747, www.oehinc.com



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# Volvo Construction Equipment Introduces The BL60

Volvo Construction Equipment announced that the Volvo BL60, the second model in its new backhoe loader product line which was launched in early 2003 with the Volvo BL70, will be introduced to the North America construction market February 26, 2004, at the American Rental Association (ARA) convention and exhibition in Atlanta, Georgia.

The new Volvo BL60 was designed for the operations of multi-machine fleet owners, construction equipment rental businesses, governmental agencies, and owner/operators looking for affordable, reliable machines that add value to those operations.

The Volvo BL60 is equipped with a low-emission, 83 net horsepower, turbocharged diesel engine and a highly reliable, fixed displacement, flow-sharing hydraulic system, providing excellent power and control for a wide range of loading and digging applications. The new backhoe loader has a 14'9" digging depth and 11,864 lb ft of backhoe bucket digging force. The 1.3 cu. yd loader has 8,936 lb ft of bucket breakout force.

The new backhoe loader can be delivered with 2 or 4-wheel drive, enclosed cab or open canopy and with a standard or extendible dipper. The machine carries many of the same features as the Volvo BL70 backhoe loader, including 50-hour (once-per-week) greasing intervals, 500-hour engine oil change intervals, and an exclusive tilting hydraulic oil cooler. All controls are positioned for easy and comfortable operation and the operator's station is designed to provide unobstructed views of the jobsite from virtually any working angle. A heavy-duty loader safety strut is integral to the loader arms. Mechanical self-leveling provides assistance in truck loading.

The new Volvo BL60 is also built for easy

service with a fully opening engine hood that provides excellent access to all key components and routine maintenance points. The



new backhoe loader also features a curved "S"-style boom, a cast iron pivot and base on the boom for improved durability, and mechanical or hydraulic bucket quick-attach systems. The Volvo Boom Suspension System (ride control) is optional on the new machine.

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“The Volvo BL60’s design represents the next step in Volvo CE’s ongoing commitment to provide quality machines that address current industry needs,” said John Matthews, Product Line Manager for Volvo’s backhoe loader products.

simplicity, performance and serviceability that make it an ideal candidate for these markets,” explained Matthews.

The new Volvo BL60 was designed following a series of customer clinics – following the trend first set with the development of

would fit the needs of the customers and then provide it at a price that would fit their budgets, as well,” said Matthews.

The Volvo BL60 backhoe loader will be manufactured in the company’s state-of-the-art backhoe loader manufacturing facility



“More and more contractors and large fleet operators are turning to equipment rentals and more affordable equipment with high production capacities as a cost-efficient way to fulfill short-term operational needs. The new Volvo BL60 provides a value-added design that offers optimal levels of safety,

the company’s BL70 backhoe loader – where backhoe loader operators and decision makers evaluated the machine at every step of its development to determine what features were most important to their operations. “By involving our end-users from day one, our engineers were able to create a machine that

located in Wroclaw, Poland, using the same chassis, loader, and backhoe components that have been proven on the Volvo BL70, the first machine in the product range and one that has received remarkable acceptance by the industry.

Source: Volvo CE North America, Inc.



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# Restoring a Dying Lake in Poland

*By Helena Gawrońska, Konstanty Lossow, and Jolanta Grochowska, University of Warmia and Mazury in Olsztyn and Chris Taylor, Minett Media*

Over 20 years, the volumes of domestic wastewater and storm water that had emptied into the small (26.8ha) but relatively deep (17.3m) Lake Dlugie in Olsztyn, Poland, had caused its total degradation.

Between 1987 and 2000 the lake had been treated by artificial aeration with destratification. This brought a slow but marked improvement of the water quality, which continued not only during the experiment but also after it finished: concentrations of the main nutrients, nitrogen and phosphorus were both noticeably reduced.

The major changes became apparent in the early years of the experiment. Later on, the rate of decrease of phosphorus slowed as a result of the limited sorptive capacity of the bottom sediments, and through a lack of manganese and iron in the water. This prevented permanent phosphorus fixation in the bottom sediments, despite good oxygenation levels. If the lake was to be restored fully, something had to be done to encourage phosphorus precipitation from the water, and its permanent fixing in the bottom sediments.

A study was set in hand to determine whether the primarily hydrolysed aluminium coagulant PAX 18 would help to restore the

lake through inactivating the phosphorus. In lake restoration, the traditional coagulants of aluminium or iron, introduced as granulates or specially prepared dilutions, are more commonly used, but studies suggested that better results followed the use of primarily hydrolysed coagulants. It was the first time such an experiment had been carried out in Poland.

## MATERIAL AND METHOD

Phosphorus inactivation in Lake Dlugie was conducted in April 2001. Twenty tonnes of coagulant, produced by Kemipol Sp. in Police, was introduced to the lake - equivalent to a dosage of 6.75g Al per square metre of bottom surface. It was dosed in narrow streams from barrels carried on rowing boats, just under the surface.

Water quality was analysed monthly between April and December 2001. Water samples were taken from three points, representing the deepest points of the lake. The analysis comprised thermal and oxygen stratification, and a full chemical examination.

## RESULTS

Lake Dlugie is characteristic of stratifying reservoirs with low levels of water body turnover. This involves a short and often incomplete spring turnover, early establishing summer stratification, and a late autumn turnover.

In 2001 the summer stratification was observed early, after a short but deep spring turnover. In the peak of summer the epilimnion was warm (23°C) and 4 m deep; temperatures fell steeply (at 4.5°C per metre) between 4 m and 8 m, and the hypolimnion was cold at just 6.5°C at the bottom. Full thermal equilibrium was not observed until the second half of November, two weeks before the lake froze.

The main goal of the restoration method was to reduce the content of phosphorus compounds in the water, and this was not expected to impact directly on the lake's oxygen levels. However, even in the early spring very high oxygenation was observed

in the surface water layers (16.6 - 17.6 mg per litre) and at the bottom (9.8 mg). Yet two weeks after the coagulant was applied, oxygen concentration decreased considerably to about 10 mg and held steady at this level until the end of the study.

It's important to note that in 2001 oxygen concentrations were equalised in the whole epilimnion. Concentration in the metalimnion did not fall under 1mg per litre, and only the hypolimnion was fully deoxygenated. In contrast, in previous years a rapid decrease of oxygenation was observed in the lower layers of the epilimnion, and full deoxygenation was found in not only the hypo- but also the metalimnion.

Research carried out in the early spring (two weeks after ice-cover melting) revealed that the productive processes had been fairly advanced (high pH, BOD<sub>5</sub>, and chlorophyll 'A' values). Phosphates content was therefore low (0.01 to 0.043 mg per litre) although the total content of phosphorus compounds was high (about 0.2 mg). The dominant form comprised organic phosphorus (0.125 to 0.191 mg). A clearly evident vertical stratification was noted immediately before the coagulant was introduced, with the maximum P concentrations in the near-bottom water.

Following the introduction of coagulant, nearly all the mineral phosphorus in the upper water layers was precipitated out, although trace elements were detected almost until the end of the study. The greatest reduction of phosphates occurred in the epi- and metalimnion. In the hypolimnion the reduction of mineral phosphorus was minimal, however phosphates release from the bottom deposits was considerably reduced. Despite the anaerobic conditions of the near-bottom water, the concentration of mineral phosphorus remained practically at the same level (about 0.15 mg per litre) whereas in the previous years it had systematically risen, up to a maximum 0.3mg in 1996, and 0.6mg in 1999.

The chosen restoration method had a major impact on the lake's organic phosphorus content. Large reductions were noted

in the summer (about 0.02mg per litre) with increases occurred only in autumn.

These changes of the mineral and organic phosphorus content of Lake Dlugie significantly reduced the total amount of phosphorus in the water. In 2001 the average amount was estimated at 150kg, half that of 1999 (303kg average) and one third that of 1996 (461kg average).

This reduction of phosphorus led to a considerable decrease of organic matter, especially the easily degradable. BOD<sub>3</sub> values in the upper layers declined from about 10 mg per litre just before inactivation, to 1.5 - 2.0 mg in the summer peak. Chlorophyll 'A' too was significantly reduced: its very high concentrations detected before the experiment (60 mg per cubic metre) decreased to just 4 mg in July. Although at the end of summer and in the autumn a gradual increase was observed, a maximum value of 21.2 mg in the middle section, measured just before the lake froze, was still lower than in 1999.

Limiting primary phosphorus production positively affected the lake water's transparency, with improvement noted only two weeks after the coagulant was added. For most of the study period the water transparency varied between 1.5 and 1.7 metres, and the maximum value of 1.8 m was measured in the middle of summer.

The work did not affect the content of nitrogen compounds in Lake Dlugie. As in previous years, the nitrogen levels varied between 1.5 and 2.5 mg per litre, and the dominant form comprised organic nitrogen. Reduced phosphorus with unchanged amounts of nitrogen caused an increase in the N/P ratio: in 2001 the ratio consistently exceeded, sometimes significantly, 20:1, while in previous years it ranged between 5:1 and 20:1.

Despite the strongly acidic properties of the PAX coagulant, its introduction to the lake did not, in itself, affect the water's pH. A substantial pH decrease was observed in May, and this declining tendency was sustained until the end of the study. The lake owes the lack of changes in the water pH to a good buffering capacity. Alkalinity before restoration ranged from 2.6 to 2.7 mmol per litre, and after the inactivation it only diminished by 0.2 - 0.3 mmol.

The coagulant did however increase the level of chlorides and aluminium in the water. Chlorides, reaching 31 - 36 mg per litre, increased after addition of the coagulant to



*It took 20 years for the volumes of domestic wastewater and stormwater that were emptied into Lake Dlugie to cause total degradation of the small but relatively deep lake. Between 1987 and 2000 the lake had been treated by artificial aeration with destratification. This brought a slow but marked improvement of the water quality*

41 - 49 mg; but over the course of a month it decreased again to 37 mg and remained around that level until the end of the study. And directly after dosing the water, average levels of 0.7 mg per litre of aluminium were measured, but the figure fell over time, and by the autumn the aluminium was totally removed.

#### **CONCLUSION AND LESSONS LEARNED**

The Lake Dlugie studies confirm the high efficiency of the PAX-18 coagulants in phosphorus removal. However, the maximum reduction and nearly total removal from the water was observed only in the epi- and the metalimnion. Low reduction of mineral phosphorus in the hypolimnion was probably the result of applying too small dosage.

The treatment's effectiveness was also affected by the manner and time of the restoration. The coagulant was introduced directly under the water surface, during a time of established stratification, which hindered precipitation of phosphates from the whole mass of water. At the same time, the advanced production processes and the related high pH led to a major portion of the aluminium (28 per cent) remaining in the water. Tests have demonstrated that insoluble Al(OH)<sub>3</sub> is present only at pH above 9. In the Lake Dlugie, total precipitation from the water was observed only after the pH dropped below 8.3.

Organic phosphorus reduction was secondary - that is, it resulted mainly from the decrease of the primary production in the lake. Limitation of mineral phosphorus availability diminished the intensity of algae growth which was displayed by the decrease

of water pH, chlorophyll 'A' concentration, and organic matter content.

Nonetheless, the main achievement was the prevention of phosphates release from the bottom deposits. Despite the anaerobic conditions, concentrations of the mineral phosphorus in the near-bottom water remained unchanged. This may result from the fact that flocs of aluminium hydroxide settling on the surface of bottom deposits form a barrier that effectively prevents phosphates upwelling.

Significantly reducing phosphorus without affecting the nitrogen content caused an increase of the N/P ratio, so that phosphorus became a production limiting factor. As a result algae blooms were stopped, water transparency increased, water excessive oxygenation diminished, as did the rate of oxygen consumption from the water.

These conclusions suggest the need to strictly control lake restoration by the phosphorus inactivation method. It is important not only to adjust the coagulant dosage, but also to properly time its application. In the case of lakes with poor water dynamics, better effects may be obtained from restoration in autumn. This should additionally limit the presence of aluminium in water. At pH over 9, - characteristic of lakes in a healthy state of nutrition - 100 per cent of aluminium is present in the dissolved form: at higher dosages it becomes toxic to fishes. The amounts detected in Lake Dlugie were small, and at the measured pH values represented no threat to living organisms.

For more information: [www.kemira.com](http://www.kemira.com)

# Bauer/IBS Demountable Flood Defence System

The frequency and severity of flooding has increased dramatically over recent years, and is now a worldwide problem that requires increasing research and investment. The effects of global warming are now becoming measurable, these include the melting of polar ice caps and glaciers, increasing sea levels and severe storm events.



Today, experts suggest that extreme flood events will become more frequent in the

coming years. It may not be possible to guard against all future events, particularly in light of the high cost of building hard-engineered defences, but there are realistic alternatives including demountable flood defence systems that can provide temporary protection against damages caused flooding.

Although Bauer Spezialtiefbau GmbH is well-known as a global provider of civil engineering technologies, such as secant pile, diaphragm and sheet pile wall systems, it was a logical step for the company to combine existing technologies with engineered systems that alleviate flooding, providing a total solution.

This new System is the Bauer-IBS

DEMFLLOOD™ designed and developed by the German manufacturer IBS and distributed



all over the world by Bauer.

The DEMFLLOOD™ system comprises lightweight extruded aluminium profiles forming posts and dam beams, stainless steel cast in anchor plates – to which the demountable posts are fitted – and high performance synthetic water seals. The DEMFLLOOD™ system has a well-proven flood defence record on main rivers in Germany, including



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the Rhine and Mosel.

Being an essentially simple system, it is also easy to install and there have been no operational difficulties for the 300 owners of the System over the last ten years.

**INSTALLATION**

The anchor plate system is cast into a concrete ground beam, that is cast onto a sheet or secant pile wall or diaphragm cut-off wall. For small applications, such a cut-off



wall may not be required.

The demountable central posts consist

mainly of an aluminium support core that is permanently fitted to a post base. The post base has holes that match the threaded holes in the anchor plate, and is bolted to the anchor plate with M24 or M30 bolts, according to the hydrostatic load requirements of the System and design flood height.

Posts are typically at 2.5 to 3.5 metre centres. When the first supporting posts are put in

place and bolted, and the covers removed from the permanently mounted end posts, then the team can begin inserting the dam beams.

DEMFLD™ uses a unique ground seal that requires no ground rail – it is highly compressible and seals against the existing ground between posts.

The System uses special pressing tools that push down on the dam beams and compress the base seal. All the

dam beams are identical and the base seal will fit into any beam, saving time on site.

When the flood event or warning is over, or the flooding season is finished, DEM-FLOOD™ is easily removed and stored until



the next use. Only the anchor plates incl. the fixing bolts remain in position.

The System is stored on its storage racks under cover. These ensure speed of recovery next time and prevent direct metal to metal contact between components avoiding contact corrosion and allowing proper circulation of air.

Source: BAUER Spezialtiefbau GmbH

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# The Province of Newfoundland and Labrador Places a New Order for 16 New Sterling Trucks

Sterling Truck Corporation has been awarded a new contract from the Province of Newfoundland and Labrador, Canada. The Province first purchased 19 Sterling LT9511 snowplows with Mercedes-Benz MBE4000 engines in 2002 and has recently purchased another 16 vehicles.

"We've set records for snow fall during the past couple of years and needed powerful trucks to help keep roads clear," said Neil Campbell, professional engineer and director of maintenance for the Province of Newfoundland and Labrador.

Responsible for plowing 18,000 lane kilometers (11,185 lane miles) of highway every winter, the Province of Newfoundland and Labrador required durable, reliable and low maintenance vehicles to carry out the demanding task. With a heavy-duty frame for plowing, a 20,000-pound front axle rating, a 40,000-pound rear axle rating and a 370-horsepower Mercedes-Benz MBE4000 engine, Sterling provided exactly what was needed.

Sterling's product line is designed to be flexible enough to offer a number of different options and deliver dependable vehicles to match the government's unique requirements. In addition, the ability to provide one product for use in multiple applications saves time and



money. During the winter, the Province of Newfoundland and Labrador equip the trucks with front one-way and wing plows, side dumps and salt spreaders for plowing snow. During the summer, the vehicles are used as dump trucks for road maintenance.

"Sterling provided the best trucks that met all of our specs at the most competitive price," said Campbell. "They've performed extremely well, and we are looking forward to receiving our second order."

Source: Sterling Trucks Corporation  
www.SterlingTrucks.com



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# CERIU Fact Sheets : “Cold-Mix Porous Asphalt Surfacing”



stickiness.

This emulsified asphalt surfacing has a low content of fine particles, a high percentage of voids and a thick film of asphalt.

## MATERIALS AND EQUIPMENT

The binder used is an emulsified asphalt to which aggregates have been added. The aggregate must have 100% grading screened at 12.5 mm for the surface course, and 100% grading screened at 20 mm for the base course.



tory notes accompanying the fact sheets to ensure proper use.

Fact Sheet 2.2.2

Flexible Municipal Pavements  
Maintenance & Rehabilitation Techniques  
Cold-Mix Porous Asphalt Surfacing

## DESCRIPTION OF THE TECHNOLOGY

### DEFINITION

Cold mix surfacing between 30 and 50 mm thick, composed of material with a high proportion of voids and deployed in a base course. This technique is intended mainly for correcting the pavement profile and improving ride quality.

### OPERATING PRINCIPLE

This surfacing is mixed in situ and applied at an ambient temperature exceeding 10°C and an aggregate temperature of over 5°C. Compacting is carried out by a pneumatic rubber-tired roller and/or steel cylinder. Fine, 2-to-3 mm size aggregate is spread over top the mix during compacting to reduce surface

## APPLICATION

### FIELDS OF USE

This procedure is mainly intended for roads with a medium traffic load. Used as a surface course, at thicknesses from 30 to 50 mm, it provides excellent performance in terms of adherence, drainage, reduced traffic noise and resistance to cracking.

Used as a base course, it reinforces weak structures that are otherwise prone to distortion.

### NOTE

The low number of tests in this regard and the consequent lack of information do not permit conclusive findings to be drawn at this time.

### DISCLAIMER

It is recommended to consult the explana-

CERIU assumes no responsibility whatsoever concerning the application of the techniques and procedures described in the present fact sheet.

To obtain the complete collection «CERIU Fact Sheets» you are invited to contact Mrs. Céline Forest by phone at (514) 848-9885 poste 272 at the Centre d'expertise et de recherche en infrastructures urbaines (CERIU).  
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# A 50% Visitor Increase at the Montreal Auto Show

The 36th Montreal International Auto Show closed on January 18th at 8 p.m. registering a 50% visitor increase compared to the previous year's edition. A total 210 683 auto fans passed through the turnstiles at the Palais des congrès de Montreal between January 9 and 18, 2004.

"We were confident, before the opening of the Show, that we would encounter success. Following a considerable setback in patronage during last year's event, held in November 2002, this year we benefited from an accessible and construction free venue at the Palais des congrès. It was clear to us that the event had to come back to its regular dates, in January, and the public responded very well" says 36th edition President, André Dorais. "These results confirm the decision by the Montreal Automobile Dealers Corporation – the event's promoters – its members and the automobile manufacturers, not only to hold the Auto Show in January but also in the heart of downtown Montreal" to conclude Mr. Dorais.



## 650 VEHICLES, 50 PREMIERES

This year, there were over 650 vehicles on the Auto Show floor. Among them, 50 Canadian or North American premieres. The

magnificent Saleen S7 was one of them.

The Montreal International Auto Show is produced and promoted by the Montreal Automobile Dealers Corporation (MADC).

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Radius machines have the maneuverability, visibility and balance to work efficiently in tight spaces. Even with the compact design, you don't have to give up any lifting capacity or stability with these machines. Put a Kobelco Short-Radius Excavator through some tight turns at your Kobelco dealer, and see how much work you can pack into a small space.

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# 2003 SAE Mini-Baja East Trophy Heads North!

On a sunny April afternoon, the collegiate team from Ecole de Technologie Superieure, of Montreal, Quebec, captured the 2003 SAE Mini-Baja East title by passing the reigning champion, Tennessee Technological University, and holding off a fierce challenge by several other contenders in the final event. The competition was held April 4-6, 2003 and was hosted by Central Florida University in Orlando, Florida.



Mini-Baja East is the first of three Mini-Baja events to be held in North America this spring, sponsored by SAE International.

The team from ETS did well in the second event, in the Midwest Mini-Baja and won the Dayton Cup (ex-aequo with Tennessee Tech University).

Mini Baja® consists of three regional competitions that simulate real-world engineering design projects and their related challenges. Engineering students are tasked to design and build an off-road vehicle that will survive the severe punishment of rough terrain and in the East competition, water.

The object of the competition is to provide SAE student members with a challenging project that involves the planning and manufacturing tasks found when introducing a new product to the consumer industrial market. Teams compete against one another to have their design accepted for manufacture by a fictitious firm. Students must function as a team to not only design, build, test, promote, and race a vehicle within the limits of the rules, but also to generate financial support for their project and manage their educational priorities.

All vehicles are powered by a ten-horsepower Intek Model 20 engine donated by Briggs & Stratton Corporation. For over twenty-five years, the generosity of Briggs & Stratton has enabled SAE to provide each team with a dependable engine free of charge. Use of the same engine by all the teams creates a more challenging engineer-



ing design test.

“Motorsports are an exciting aspect of automobile technology and are certainly growing in popularity.” Stated Bob Sechler,

SAE Education Relations Manager. “But, this competition is not about making better cars. It is about making better engineers. The competition combines the technical information students receive in the classroom with real world-challenges which include project management, teamwork, systems engineering, and problem solving. This develops skills that will be very useful as they enter the mobility industry, as professionals.”

Source: Mini-Baja SAE-ETS

web: [minibaja.etsmtl.ca](http://minibaja.etsmtl.ca)

Society of Automotive Engineers

## Webasto BlueHeat Offers Warmth With No Idling, No Plug!

Finally, there's a car accessory that safeguards your engine without the need for an electrical outlet, the BlueHeat line of vehicle heaters by Webasto.

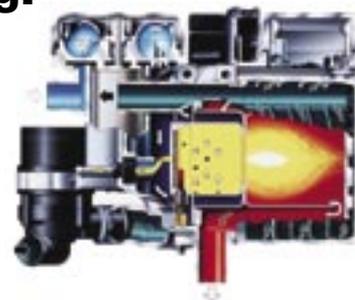
The BlueHeat vehicle heater enables the user to warm the car or truck without idling. Idling causes unnecessary damage to the engine and produces increased amounts of polluting exhaust fumes. When the Webasto BlueHeat heater is activated, it draws fuel from the vehicle's fuel supply, heats and circulates the engine's fluids, and circulates heated air into the vehicle's passenger compartment without idling the engine.

BlueHeat heaters are installed standard with a digital timer, allowing the user to easily set the start time for as many as three times each day. The digital timer mounts to the vehicle's dashboard and presents a clear LED display of its active functions. Also available for the BlueHeat heaters is a convenient remote activation key fob. This remote control unit contains three buttons; the first for starting, the second for ending, and the third to operate the fan for air circulation inside the vehicle. The remote's standard range is just under 500 feet.

Using an auxiliary heater from Webasto frees the operator from time-consuming and tedious chores, such as clearing the ice from windshields, and waiting for the vehicle to warm up. Your time is spent on more important items, such as your family, your job, and your friends. In the morning your vehicle can heat up while you're enjoying breakfast, knowing that you're not idling your car and spewing increasing amounts of pollutants into the environment. With Webasto's BlueHeat heaters, you have more time.

Source: Webasto Products North America, [www.webasto-us.com](http://www.webasto-us.com)

François G. Deslauriers, (613) 677-1375



# SOFT-PLOW



May not be exactly as shown

W. Côté & Fils Ltd, the largest Canadian manufacturer of snow removal equipment and an industry leader in North America, has developed a new and revolutionary suspension system.

This super-smooth system - called Soft-Plow - has been designed to absorb the shocks which occur during moving maneuvers with the snow blade in its upright position.

In this application, the hoist which is attached to the front harness of the truck is bolted to two accumulators filled with compressed nitrogen that allow a travel of three inches (76.2 mm).

## Here are some of the benefits of this new revolutionary system:

- ☀ An unprecedented smoothness of ride.
- ☀ Reduces impacts on the vehicle chassis.
- ☀ Stabilizes the truck in sudden starts and stops.
- ☀ Minimizes vehicle vibrations.
- ☀ A more enjoyable ride for the operator.
- ☀ Reduces wear on the front tires and suspension.
- ☀ Reduces wear and tear on the axles and the steering system.

And, best of all, it reduces the operator's stress level and fatigue, allowing him to go about his work in a much more quiet, enjoyable and controllable way.

This suspension system can be installed on all Côté products, as well as on most of our competitor's harnesses.

*(This device is patent pending)*



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