

# Pipe Coating Solutions

Volume I, Winter 2008

Pipe Coating Solutions is a Bredero Shaw newsletter written for pipe coating professionals worldwide. In this edition Bredero Shaw will highlight some of its new contracts, key projects and increased plant capabilities around the world.



## WHAT'S INSIDE

- Upcoming Events
- News Updates
- Key Projects
- Plant Capabilities
- Plant Mobilization

 **BREDERO SHAW**  
A SHAWCOR COMPANY

*the GLOBAL LEADER in pipe coating solutions.*

## IN THIS ISSUE:

NEWS UPDATE 3



Far East: Joint Venture 3



New Concrete Lab Opening 3

KEY PROJECTS 4



EAF: Blind Faith Project 4



Canada: Deep Panuke Project 4



Far East: Pluto LNG Project 5



Far East: Qatargas 3 & 4 Project 5

PLANT CAPABILITIES 6



Canada: Camrose II 6

PLANT MOBILIZATION 7

CONTACT INFORMATION 7

PIPE COATING FACILITIES 8

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## Upcoming Events

### February

**OPT**  
February 27 - 28, 2008  
Houston, Texas

### March

**Subsea Tieback**  
March 3 - 5, 2008  
Galveston, Texas

**NACE**  
March 16 - 20, 2008  
New Orleans, Louisiana

**Pipeline Opportunities**  
March 25, 2008  
Houston, Texas

### April

**Norskehavskonferansen**  
April 2 - 3, 2008  
Sjoldal, Norway

**APPEA Conference & Expo**  
April 6 - 9, 2008  
Perth, Australia

**Marine Construction Europe**  
April 8 - 10, 2008  
Paris, France

**Oil & Gas West Asia**  
April 21 - 23, 2008  
Sultanate of Oman

### May

**Offshore Technology Conference (OTC)**  
May 5 - 8, 2008  
Houston, Texas

**IPA**  
May 27 - 29, 2008  
Jakarta, Indonesia

### June

**UTC**  
June 4 - 5, 2008  
Bergen, Norway

**Global Petroleum Show (GPS)**  
June 10 - 12, 2008  
Calgary, Alberta

**Gas Technology Asia**  
June 11 - 13, 2008  
Kuala Lumpur, Malaysia

### July

**Oil Sands & Heavy Oil**  
July 15 - 17, 2008  
Calgary, Alberta



### On the cover:

The cover photograph features pipes destined for Qatargas 3 & 4 which is the first project to be undertaken at Bredero Shaw's newly upgraded Ras Al-Khaimah facility. For more information on this project please refer to page 5.

# NEWS UPDATE

## Bredero Shaw Signs New Joint Venture Agreement

On October 30th, 2007 Bredero Shaw signed a joint venture agreement with Canadoil Pipe Limited (CPIPE) and Canadoil Coating Limited (CCL) to provide management services for the operation of CCL in Thailand.

With the increased large diameter pipeline construction activity in Asia as well as globally, Bredero Shaw is extremely pleased to enter into this agreement with CPIPE and CCL. This new

venture not only provides Bredero Shaw with a pipe mill position in Thailand, but also provides growth opportunities into some of Bredero Shaw's non-traditional markets.

CPIPE is a large diameter pipe manufacturer located in Rayong, Thailand. The pipe mill has been in operation



▲ Top Row (left to right): Jayson Smith (Bredero Shaw), Jack Dubois (Bredero Shaw), Cédric Kaelbel (CPIPE); Bottom Row (Left to Right): Lee Evans (Bredero Shaw), Giacomo Sozzi (Canadoil Group)

since 2006 and is capable of manufacturing longitudinal SAW steel pipe up to 72" in diameter in API specifications 2B and 5L with yield strength up to API 5L-X80 grade.

CCL, which is located adjacent to CPIPE's pipe mill, will provide fusion bond epoxy, 3-layer and internal pipe coating products and services to CPIPE starting in the second quarter of 2008. The agreement between Bredero

Shaw, CPIPE and CCL contains provisions whereby Bredero Shaw will provide an experienced management team to operate and manage CCL.

## Grand Opening of ShawCor's Concrete Lab

The new ShawCor concrete laboratory in Toronto, Canada, became fully operational at the end of 2007. Located in the ShawCor head office compound, the new lab provides a strong R&D base for the concrete team led by Phil Zacarias, Technology Group Manager Concrete.

The new lab will help the concrete R&D team support the development of Bredero Shaw's concrete coatings and will strengthen Bredero Shaw's global leader position in pipe coating solutions. Concrete coatings represent the base of the protective and weight coatings product line, a significant revenue driver for Bredero Shaw worldwide. The company operates fixed and portable concrete coating facilities that satisfy the customers' need for negative buoyancy, especially for offshore pipelines, and for mechanical protection for onshore pipelines in difficult areas (rocky/mountain areas, steep slopes).

Equipped for preparing, testing and curing different concrete mixes and mortars, the new lab can also test raw materials such as cement, supplementary cementitious materials, and aggregates. The available range of tests includes compressive strength, density, porosity, crushing strength, abrasion resistance, and durability.

Complemented by the production-scale trials in the different Bredero Shaw concrete coating plants, the infrastructure of the concrete lab will allow the concrete R&D team to work together with the different Bredero Shaw departments to improve the existing concrete coatings and coating processes, to find solutions for challenges related to concrete coating projects and to develop new concrete coating systems and processes.

# KEY PROJECTS

## Bredero Shaw Coats Blind Faith Project

Bredero Shaw was awarded contracts to provide insulation coating for the subsea production linepipe, the field joints and the SCRs for the Blind Faith Project located 2200 m deep in the Gulf of Mexico.

To minimize the risks resulting from high pressure leaks and burns, Bredero Shaw's engineers specified a multi-layer insulation system comprising a 3-layer polypropylene (3LPP) anti-corrosive base layer, syntactic polypropylene, weight coating and polypropylene Thermotite® deep foam insulation in different configurations. The project scope included over 13 km of flowlines, 8 km of SCRs and nearly 1,500 polypropylene field joints. The pipe coatings were applied onto 8" pipes capable of withstanding the high operating temperatures within this field of up to 300°F (149°C).

The Blind Faith Pipeline was coated at Bredero Shaw's facility in Orkanger, Norway, which is known globally for its technical expertise in thermal insulation coatings and has been developing high technology coating solutions since the early 1990s. This experience has allowed the development of a wealth of knowledge aimed at exploiting deep water environments.



▲ Blind Faith Project

## EnCana Deep Panuke Project to be coated by Shaw Pipe

Shaw Pipe, part of Bredero Shaw, has received a contract to provide negative buoyancy coating for the EnCana Deep Panuke offshore project in Nova Scotia. The award was made to Shaw & Shaw Limited, a Nova Scotia registered company, owned by Shaw Pipe Protection Ltd. of Calgary and The Shaw Group Limited of Halifax. Shaw & Shaw successfully provided coatings for the Sable Offshore Energy Tier 1 and 2 Projects in 1998 and 2002 respectively. The success of Shaw & Shaw in Atlantic Canada has been the result of combining Shaw Pipe's global pipe coating expertise along with resources provided by the Shaw Group in Nova Scotia.

Working for EnCana, Shaw & Shaw will provide pipe handling, concrete weight coating and sacrificial anode installation for this 175 km, 22" diameter pipeline. The pipeline will be installed in the waters off Nova Scotia and will transport gas from the production platform to Goldboro, Nova Scotia, where it will enter the Maritimes & Northeast Pipeline system.

Shaw Pipe will mobilize one of its Compression Coat Concrete Weight Coating plants to the previously utilized coating yard in Sheet Harbour, Nova Scotia. Shaw Pipe Protection's Compression Coat technology is the industry's leading concrete coating system for projects requiring rapid mobilization or coating near the pipeline right-of-way. Compression Coat uses a side-wrap application process making it ideal for both large and small diameter pipelines.

▼ Pipes Protected with Shaw Pipe's Compression Coat Technology at a Compression Coat Concrete Weight Coating Facility



# KEY PROJECTS

## US\$85 Million Contract Awarded to Bredero Shaw

Bredero Shaw (Singapore) Pte Ltd. has received a contract with a total value of over US\$85 million to provide anti-corrosion, flow assurance, concrete weight and internal flow efficiency pipeline coatings for the Woodside Pluto LNG Project.

The coating scope entails 180 km of 36" pipe connecting Woodside's Pluto field in Western Australia's Carnarvon basin to Woodside's LNG facility on the Burrup Peninsula, 55 km of 20" insulated flow lines supplying gas to a shallow water production platform and 180 km of 6" pipe to provide mono-ethylene glycol which will be used as a hydrate inhibitor in the offshore gas export pipelines.

The pipe will be coated at Bredero Shaw's coating facilities in the Far East and in Orkanger, Norway with the work beginning in 2008 and continuing through the end of 2009. Coating of 182 km of 6" pipe will commence in the second quarter of 2008 at Bredero Shaw's Kabil, Batam, Indonesia facility. Pipes will be coated with 3 layer polypropylene (3LPP) and concrete weight coating (CWC) as well as having anode installation and internal blast cleaning. Simultaneously,



Bredero Shaw's Orkanger facility will be coating 12.2 km of 20" pipe with a high density insulation coating and will also be installing u-brackets and doubler plates. Also starting in the second quarter of 2008, the Kuantan, Malaysia facility will begin protecting 180 km of 36" pipe with internal coating, asphalt enamel and CWC and will perform anode installation. 44 km of 20" pipe will be coated with 4 layer polypropylene (4LPP).

The Pluto LNG Project is operated by Woodside, Australia's largest publicly traded oil and gas exploration and production company.

Bredero Shaw has provided pipeline coatings for oil and gas projects from facilities in the Far East for over 20 years. With recent investments at its Kuantan, Malaysia facility and Batam, Indonesia facility, Bredero Shaw continues to serve the needs of the growing Far East and international pipeline markets including Australia.

## Ras Al-Khaimah Facility Commences Coating for Qatargas 3 & 4 Offshore Pipeline Project

In December, Bredero Shaw Middle East reopened its upgraded coating facility located in Ras Al-Khaimah in the United Arab Emirates after undergoing a major mobilization program incorporating the introduction of 3-Layer and internal coating operations.

Coating for the Qatargas 3 & 4 Offshore Pipeline Project commenced in December and it is the first project to be undertaken at the upgraded facility. The project entails 3-layer anti-corrosion, concrete weight and internal coating of 130 km of 38" pipe. The pipeline project, to be operated by Qatargas Operating Company Ltd. and constructed by J. Ray McDermott Middle East Inc., will connect three wellhead platforms situated in the North Field, offshore Qatar, with Ras Laffan City, Qatar.

Bredero Shaw has provided coatings for oil and gas projects from facilities in the Middle East for over 30 years. With the recent investments at its Ras Al-Khaimah facility Bredero Shaw continues to serve the needs of the Middle East and international pipeline markets.

▼ 3LPP Coated Pipes Destined for Qatargas 3 & 4



# PLANT CAPABILITIES

## Shaw Pipe's Coating Solution Centre Expansion Continues

With the completion of the Camrose II expansion and the recent announcement of an additional pipe coating facility in Camrose, Alberta, Shaw Pipe's "Coating Solution Centre" in Camrose continues to expand.

Camrose II will provide Western Canadian customers with high levels of quality and service and will offer the added capacity and capability to produce Insul-8® Systems including Insul-8® HT for up to 36" diameter pipe, Yellow Jacket® for pipe diameters up to 24" and fusion bonded epoxy (FBE) for up to 48" diameter pipe.

This new facility sits adjacent to Shaw Pipe's existing Camrose I facility which offers High Performance Composite Coating for pipe up to 42" diameter and FBE for pipe up to 48" diameter.

Camrose II sits on a 130 acre site and is adjacent to another 250 acres of land which allows for increased pipe storage capacity and future expansion in order to meet the requirements of both small and large diameter projects. In addition, a new rail spur was also constructed at Camrose II, doubling the facility's transportation capacity and a new facility offering double jointing services has been established.

In January, Shaw Pipe announced that it will invest \$11 million to construct another new pipe coating facility in Camrose, to provide technologically advanced internal pipe coatings and insulation systems for the Western Canadian Sedimentary Basin (WCSB).

The new coating facility, scheduled to be completed in the third quarter of 2008, will provide advanced SureFlo® internal flow efficiency, anti-corrosion and abrasion resistant pipe coatings for the Oil Sands region and other pipeline markets. The SureFlo® product line will be expanded in 2008 to include internal anti-corrosion and abrasion resistant coatings and this new facility is a key component of this expansion strategy. In addition, the new facility will manufacture Insul-8® AG, a new high temperature pipe insulation system for above ground pipelines.

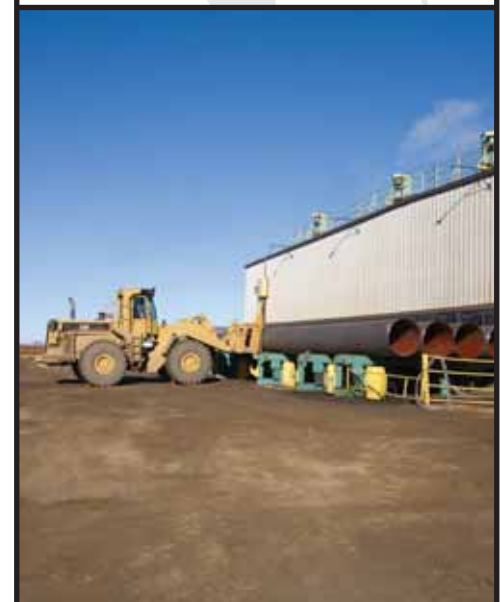
Shaw Pipe's customers in the growing Oil Sands industry are driving this major expansion. Shaw Pipe remains committed to providing customers with the highest levels of quality, service, delivery, safety, innovation and value.



### MANUFACTURED PRODUCTS at CAMROSE II

FBE: Fusion Bonded Epoxy Powder Coating
Yellow Jacket®: High Density 2 Layer Polyethylene Coating
Insul-8®: Moulded or Spray Applied PU Foam Insulation
Insul-8® HT: Spray Applied PU Foam Insulation for High Temperature
Insul-8® AG: Pre-Insulated Pipe Insulation System

### LOCATION



# PLANT MOBILIZATION

## Bredero Shaw Responds to Local Demands

There is an increasing demand within the market for delivering fast, robust and cost effective Concrete Weight Coating (CWC) solutions. As a response to this need, Bredero Shaw has set up a number of mobile CWC facilities within the Mediterranean area. The first plant was mobilized to service the Balearic Submarine project. This pipeline crosses one of the deepest offshore channels in Europe from Denia, on the East coast of Spain to Mallorca via Ibiza - a distance in excess of 270 km. The coating commenced at the end of October 2007 and will be completed by April 2008.

The second of these mobile CWC facilities, which represents another significant new business award for Bredero Shaw in the Mediterranean, is the British Gas Hasdrubal project from Saipem. Bredero Shaw has established a CWC facility at Gabes, Tunisia to coat the 18" pipeline which runs from the Hasdrubal Field in the Gulf of Gabes and lands just south of Sfax - a stretch of about 100 km. The coating commenced at the end of last year and will be completed in the first quarter of 2008.

These mobile CWC facilities offer customers a range of benefits from cost and time savings on logistics through to flexibility during the application process, representing a desirable option for the execution of pipeline coating projects.



▲ Pipes Protected with Bredero Shaw's Compression Coat Technology



▲ One of Bredero Shaw's Compression Coat Concrete Weight Coating Plants mobilized in Alicante, Spain

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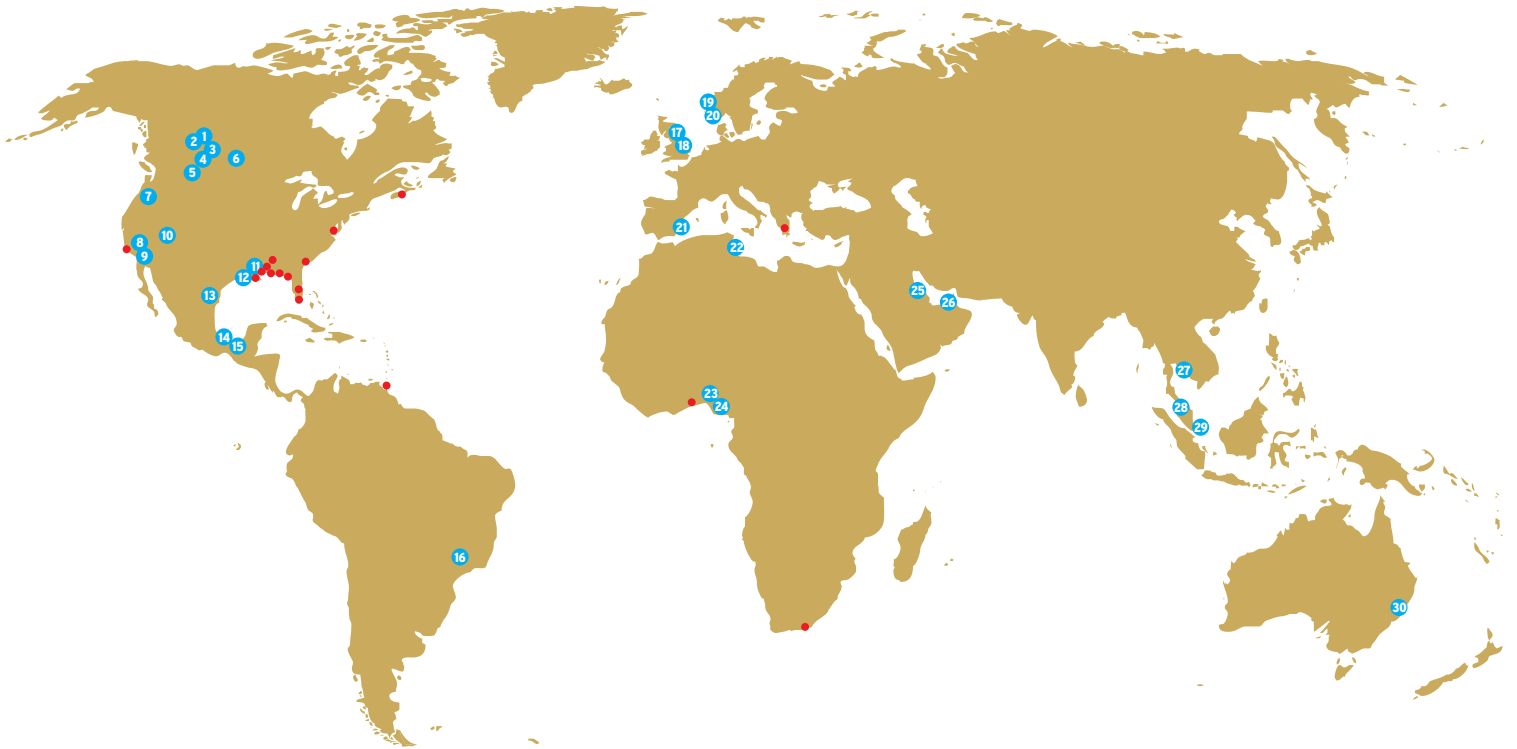
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## The World's Leading Pipe Coating Facilities



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- **PLANTS**

### AMERICAS

1. 34<sup>th</sup> Street, Edmonton, Alberta
2. 21<sup>st</sup> Street, Edmonton, Alberta
3. Camrose I, Camrose, Alberta
4. Camrose II, Camrose, Alberta
5. Calgary, Alberta
6. Regina, Saskatchewan
7. Portland, Oregon
8. Adelanto, California
9. Fontana, California
10. Vineyard, Utah
11. Beaumont, Texas
12. Pearland, Texas

13. Monterrey, Mexico
14. Veracruz, Mexico
15. Coatzacoalcos, Mexico
16. Belo Horizonte, Brazil

### EUROPE, AFRICA AND FSU

17. Ellon, Scotland
18. Leith, Scotland
19. Orkanger, Norway
20. Farsund, Norway
21. Alicante, Spain
22. Gabes, Tunisia

23. Enerhen/Warri, Nigeria
24. Onne, Nigeria

### MIDDLE EAST

25. Jubail, Saudi Arabia
26. Ras Al Khaimah, UAE

### FAR EAST AND AUSTRALIA

27. Rayong, Thailand
28. Kuantan, Malaysia
29. Kabil, Batam Island, Indonesia
30. Kembla Grange, Australia

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Published by: Bredero Shaw's Global Marketing Group

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