

Deep Panuke Gas Pipeline

PROJECT HISTORY

The Deep Panuke gas field is located approximately 250 km southeast of Halifax, Canada, on the offshore Scotian Shelf. The gas wells will produce gas from a carbonate reservoir located about 3.5 km below the seafloor. EnCana Corporation discovered the reservoir in 1998 with further drilling from 1999-2005. A 560 mm (22") subsea pipeline will transport the processed gas to Goldboro, Nova Scotia (Canada), where it will connect with the Maritimes & Northeast Pipeline network to take the gas to market.



Protective & Weight Coatings

PROJECT DETAILS

OWNER/OPERATOR	EnCana Corporation
CONTRACTOR	EnCana Corporation
DESIGN/ENGINEERING	Allseas
COUNTRY	Canada
PIPELINE LENGTH	174 km
PIPE DIAMETER	22"
WATER DEPTH	0 - 145 m
COATING SOLUTION	Compression Coat
COATED JOINTS	14,099
COATING THICKNESS	60 mm (2.4"), 80 mm (3.1") and 100 mm (3.9")
COATING DENSITY	3050 kg/m ³
ANODES INSTALLED	1367 (334 on 60 mm CWC, 1033 on 80 mm CWC)
BUCKLE ARRESTORS	196 (55 on 60 mm CWC, 141 on 80 mm CWC)
COATING COMPLETED	October 2008

PROJECT SCOPE

The gas pipeline was designed to have different thicknesses of concrete weight coating to give the pipeline the negative buoyancy specified by its designers. Shaw & Shaw Ltd, a Nova Scotia registered company, owned by Bredero Shaw and The Shaw Group Ltd of Halifax were awarded the contract to coat 14,099 pipe joints with concrete coating, to install 1367 sacrificial anodes and the concrete coating of 196 buckle arrestors.

MOBILIZATION & COATING

The Bredero Shaw solution for the Deep Panuke project was Compression Coat in one of its mobile facilities.

The set-up of a mobile concrete coating plant began on June 23, 2008 in Sheet Harbor, Nova Scotia, with the coating of the pipes and the buckle arrestors beginning on July 7, 2008. The application of the Compression Coat and the installation of the sacrificial anodes were done in two shifts six days a week to take advantage of the short coating window until October, when local weather conditions deteriorate.

The coating plant was demobilized in the beginning of November 2008 and shipped back to Houston, Texas.

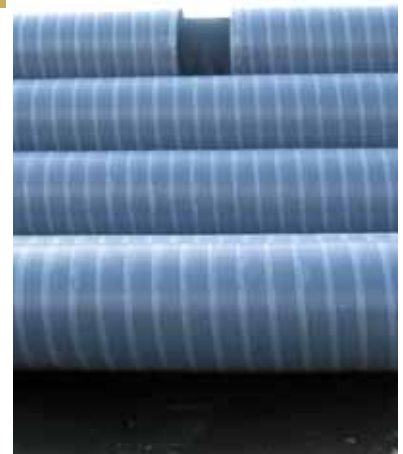
LOCATION



LOCAL CONTENT & COOPERATION

An important role in the successful finalization of the Deep Panuke coating project was the result of combining Bredero Shaw's global pipe coating expertise with the local resources and market knowledge of the Shaw Group and Shaw & Shaw. Shaw & Shaw had successfully completed two projects (Sable Offshore Energy Tier I & II) at the Sheet Harbour site in 1998 and 2002, which meant the site required little construction to restore it to a suitable state for the project.

Bredero Shaw and its partners maximized the use of local labor and resources on this project. Up to 120 local employees and subcontractors were all trained according to the Bredero Shaw health, safety and environmental standards. As well, some of the coating materials and equipment were sourced locally.

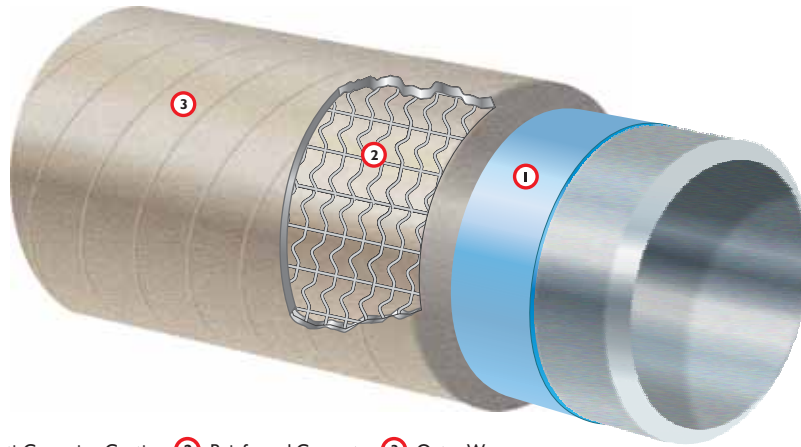




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COMPRESSION COAT



① Anti-Corrosion Coating ② Reinforced Concrete ③ Outer Wrap

PRODUCT DESCRIPTION

Compression Coat is the pipeline industry's leading coating system for projects requiring rapid mobilization or coating near the right-of-way. This concrete coating system is designed to provide negative buoyancy and mechanical protection for pipelines in submarine and wet environments. Compression Coat uses a side-wrap application process making it ideal for both small and large diameter pipelines. The product is available in various thicknesses and densities and can be applied over anti-corrosion and insulation coatings.

Compression Coat can be applied in a wide range of densities and thicknesses to meet project requirements. This feature can improve installation and optimize negative buoyancy and mechanical protection while minimizing cost. The product is available in thicknesses up to 150 mm (6") providing a high level of mechanical protection and stability. The Compression Coat system offers a consistent and uniform thickness and minimum weight variance from specifications.

Bredero Shaw has unique portable Compression Coat facilities that can be mobilized in a short period of time to meet specific project requirements. This can significantly reduce pipe transportation and handling costs.

SELECT COMPRESSION COAT PROJECTS

PROJECT	CUSTOMER	LOCATION	LENGTH (km)	DATE
Balearics Gas Pipeline	Enagas	Spain	267	2008
Hasdrubal Gas Pipeline	BG Tunisia Limited	Tunisia	108	2008
Pol A	Oceanografia	Mexico	56	2006
West Africa Gas Pipeline	WAP Co.	Ghana	598	2005
Lobina & Carpa	Global Offshore Mexico	Mexico	280	2005
BUD	National Gas Co. of Trinidad & Tobago	Trinidad & Tobago	64	2004
Mardi Gras	British Petroleum	USA	147	2003
Nakika	Shell Oil Co	USA	63	2002
Gulstream	Gulfstream Co./Williams	USA	687	2001

BREDERO SHAW: THE GLOBAL LEADER IN PIPE COATING SOLUTIONS

Bredero Shaw is the global leader in pipe coating solutions, with more than 75 years of experience, over 27 pipe coating facilities located worldwide and the largest team of technical and service specialists in the business. Bredero Shaw offers technologically advanced solutions for anti-corrosion coatings, protective and weight coatings, thermal flow assurance coatings, internal coatings, custom coatings and field joints for both onshore and offshore applications. This broad range of products and services provides Bredero Shaw with the unique capability to service the full spectrum of pipeline protection and flow assurance requirements. Consult your Bredero Shaw representative for your unique project requirements.

The information contained herein is indicative of the types of coatings provided by Bredero Shaw, and is not intended to be a guarantee that a particular coating will be suitable for a given application. Since many unique environmental, operating, and design conditions must be considered, the user shall determine the suitability of the coating for the intended use and assume all the risks and liabilities in connection therewith. Bredero Shaw's liability is stated in our standard conditions of sale.

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