BERNHARD SCHULTE SHIPMANAGEMENT

SMC NEWS

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Delivery News

Beihai, China: Delivery of MV "Stella Laura" - 180,000 DWT Bulk Carrier

2 June 2015

SMC is pleased to report Delivery in Beihai Shipbuilding & Heavy Engineering Co Ltd, Qingdao, China: of MV "Stella Laura", Hull No. BC18.0-56, the first unit from the series of 2 x 180,000 DWT Bulk Carriers ordered by Ever Stella Shipping Investment Limited.

Vessel's principal particulars: LOA = 295.0 m, B = 46.0 m, D = 24.8 m, Draft (d/s) = 16.5 m/ 18.1 m. Propelled by MAN B&W 6G70ME-C9.2 TIER II part load – ECT and developing SMCR 14,875 kW at 70.5 rpm or CSR 11,900 kW at 65.4 rpm the vessel will operate at the speed of 14.5 knots. Both vessels in the series are classed by China Classification Society and will be built to Singapore flag requirements. Classification notes: CSA, Bulk Carrier, CSR, BC-A, Hold Nos. 2, 4, 6, 8 may be empty, Strengthened for heavy cargoes, Grab (25), ESP, In-water survey, FTP, BWMP(MEPC.127(53)), Loading Computer(S,I,G), PSPC(B), CSM, AUT-O, SCM, PMS.

The vessel departed the shipyard on 4 June 2015 heading on her maiden voyage to load coal in Indonesia for India.

New Project

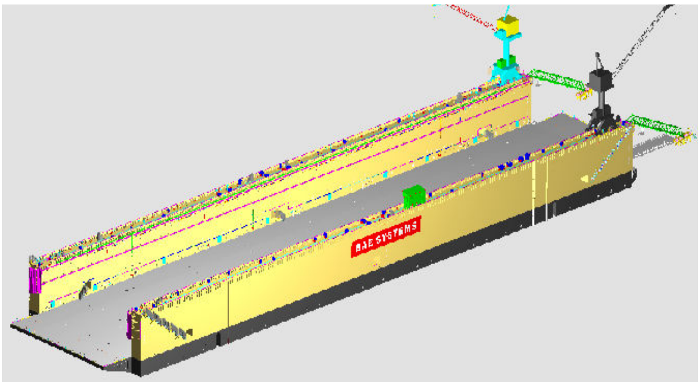
BAE Systems - 1 x 55,000 LT Floating Dry Dock

A large floating dry dock of 55,000 long ton lifting capacity has been ordered by BAE Systems, USA in Qingdao Beihai Shipbuilding Heavy Industry Co., Ltd, China. The dock will be classed by ABS. SMC secured this project in March 2015 and will be providing plan approval and on-site supervision services to BAE. The project construction period will span approximately one year, commencing with steel cutting in July 2015 and concluding with delivery in July 2016.

Principal particulars of the dry dock:

Length over pontoons	259.7	m
Length over all	289.7	m
Width between outer wing shells, molded	62.4	m
Width between inner wing shells, molded	51.60	m
Overall depth (steel hull at outside of wing wall)	22.37	m
Maximum design draft	19.76	m
Rated lift capacity	55,000	long tons

The dock is designed by HEGER USA, who specialize in design of dry docks, and consists of 3 pontoons with a lifting capacity 55,000 long ton. The dock will be fitted with 12 high capacity de-watering submerged electric pumps, which limit the total flooding time to 120 minutes and de-flooding time to 160 minutes at the designed lifting capacity. Two on-board generators provide a secondary source of power, with primary being shore power. Two wing wall cranes each with a maximum capacity of 50 tonnes cover the entire pontoon deck. The vessel handling system provided consists of 4 hauling winches and 4 centering winches (15 tonnes each) together with 16 single swivel directional sheave blocks.



A control house provided on the starboard side wing deck serves as a centralized station to control and monitor critical equipment such as Diesel generators, de-watering pumps, remote tank readings, shore power, ICCP, fire main, compressed air and alarms.

On completion, the dock will be transported from China to USA on a 'wet tow'.

SMC on-site team will have five members when fully manned and will be managed by Site Manager Mr. Ekrem Sahin who comes with eight years experience of new-building supervision.

Shipyard Always Knows Better – Cold Cracking on Hatch Coamings

Sebastian Warcaba
Site Manager
Chengxi Site Office

Presentation of condition

We don't like to be unlucky, nobody does, but sometimes we need to face problems, big or small. During a cold winter in December 2014, the shipyard pushed workers to finish welding hatch coamings to conform to the undocking deadline. Despite the Class report and Supervisors requirement, welding was not completed according to the welding procedure, but effect after grinding was very nice – as always.

During the final inspection, after welding, we found a single crack. Fillet welding was discovered between longitudinal hatch coaming and main deck. Our investigation extended very fast, to not only welding of longitudinal hatch coamings but welding of hatch coaming top. More and more cracks were found, MT on each one from 5 cargo holds. Due to different construction, the biggest problems occurred on cargo holds No.2 to No.5, and most of them were on longitudinal parts.

The investigation team included a DNV GL material specialist, a SMC Senior Technical Officer, Shanghai. It seemed the Shipyard didn't care too much, "We will gouge areas and re-weld – it can be repaired". Yes, it can be – but how can we be sure that after repairing, cracks will not propagate again? ROOT CAUSE ANALYSIS must be provided by Shipyard together with Class.

Root cause analysis

After finding the cracks, the three parties discussed and investigated possible reasons and solutions. The SMC specialist and the DNV GL specialist also gave full support and suggestions.

We concluded that there were potentially 5 reasons for the welding cracks occuring:

• MAN: We checked the welders' records and qualification, as it turned out all of them were qualified but the job had not been performed correctly. The workers carried out the pre-heating using only gas, which caused the pre-heating temperature to cool down so quickly that there wasn't enough time for welding. Some points were only 30 °C (the requirement is 65 °C). In addition, initially they didn't take any action to ensure the temperature cooled down slowly after welding.

• MACHINE: We analyzed the welding equipment condition and didn't find any obvious problems, but we were not sure if the welders used the correct settings during welding to increase the speed of welding.

• MATERIAL: We checked the steel plate. According to the traceability, all of them were certified by DNV GL.

• METHOD: We checked the hatch coaming design and the welding procedure. For the design, they were calculated and approved by DNV GL. For the welding procedure, generally they were professional but we found the welding sequence wasn't very detailed.

• ENVIRONMENT: As mentioned at the beginning of this article, the wet and cold weather conditions could be the principal reason causing the cracks.

After careful analysis of positions and profiles of occurred cracks, we agreed that the cracks found on welds belong to hydrogen cracking.

Cause & Avoidance of hydrogen cracking

• Factors affecting cracking

The occurrence of hydrogen cracking depends on a number of factors: composition of the steel, welding procedure, welding consumables and stress involved.

If the cooling rates associating with welding is too rapid, excessive hardening can occur in the heat affected zone. If sufficient hydrogen is present in the weld, the hardened zone can crack spontaneously under the influence of residual stress after the weld cooling down to near ambient temperature.

Welding conditions may be selected to avoid cracking by ensuring that the heat affected zone cools sufficiently slowly, by control of weld run dimensions in relation to metal thickness, and if necessary, by applying preheating and controlling interpass temperature.

The hydrogen input to the weld can be controlled by using hydrogen controlled welding processes and consumables and also to some extent by use of preheating and interpass temperature control.

• Preheating & Interpass Temperature

In case too little heat is introduced or heat is carried away too fast, the work piece must be preheated. The determination of safe preheating levels for the prevention of hydrogen cracking critically depends on accurate knowledge of parent metal composition and carbon equivalent (CE) and weld metal composition.

- Carbon equivalent (CE) values for parent material

Calculation uses the following formula:

$$CE = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15} in\%$$

According to DNV GL RULES Pt.2 Ch.2 Sec.1, maximum carbon equivalent values for high strength steel (Grade EH36 50 mm < t ≤ 100 mm) supplied in TM condition is 0.40%.

- Hydrogen content of welding consumables

Deciding on which hydrogen scale to used for any arc welding process depends principally on the weld diffusible hydrogen content. The trade mark of welding filler metal is GFL-71/C1, the grade of DNV GL approval is III YMS (H5) and the hydrogen scale of filler metal belongs to "C" level.

- Preheating temperature

The safe preheating temperature to be used should be above 110 °C. The pre-heating temperature should be measured at a distance of minimum 75 mm from edge of the groove at the opposite side of the heating source when practically possible.

• Hydrogen reduction by post-heating

When there is a higher risk of cold cracking, hydrogen release should be accelerated by either maintaining the minimum interpass temperature or raising the temperature to 200 °C to 300 °C, immediately after welding but before the weld region cooling down to below the minimum interpass temperature. The duration of post-heating should be at least 2 hours and is a function of the thickness. Larger thicknesses require temperatures at the upper end of the stated range as well as prolonged post-heating time. Post-heating is also appropriate when a partially filled weld cross-section is to be cooled.

• Hydrogen controlling of welding consumables

The manufacturers should be able to demonstrate that the consumables should be used in the manner recommended by the consumable manufacturers and that the consumables have been stored and dried, or baked to the appropriate temperature levels and times.

Low hydrogen welding electrodes must be put in quiver with demanded use.

poor post heating

cracks

Introduction of Site Office - Chengxi Site Office

Chengxi shipyard Co., Ltd. is a subsidiary corporation wholly-owned by CSSC Holdings, China, which is located in Jiangyin city, Jiangsu province, at lower reach of Yangtze River. The company is mainly engaged in ship repair and newbuilding, offshore engineering and large steel construction.

Aquavita International, Greece, ordered 2 x 38,800 DWT Bulk Carriers in Chengxi Shipyard. The first vessel “True Love” was the first energy-saving system bulk carrier built in China and was delivered on 12 May 2015. The younger sister “Dolce Vita” was delivered on 8 July 2015.

The Site Office opened in April 2014 and closed in July 2015 after the successful delivery of “Dolce Vita”. The site team was composed of one Site Manager, two Paint Supervisors, one Hull Supervisor, one Electrical Supervisor, one Machinery Supervisor and one Secretary. “Out of many, we are one” is the portrayal of the team. During the supervision, our site team made effective communication and sincere cooperation with the Shipowner, Shipyard and Class. The extensive experience of our supervisors in the newbuilding industry and clear division of labor were vital factors to complete the project smoothly and successfully.

Supervisors of Site Office - Chengxi Site Office

Sebastian Warcaba
Site Manager

Huang Xinhua
Paint Supervisor

Jin Dasheng
Hull Supervisor

Lu Yang
Paint Supervisor

Xu Bo
Electrical Supervisor

Yin Xiucheng
Machinery Supervisor

Judy Zhu
Secretary

COSCO Nantong, China: Repair of MV “Aeneas” - 82,000 DWT Bulk Carrier

28 April 2015

COSCO Nantong Shipyard, China: Repair work for Collision damage of MV “Aeneas” 82,000 DWT bulk carrier, owned by Transocean Maritime Corp (TMA), Singapore.

MV “Aeneas” was undergone a collision with another container vessel at Shanghai pilotage on 2 April. The vessel’s bow part (port side) was heavily damaged. After preliminary damage assessment at Shanghai, the vessel was brought to COSCO Nantong Shipyard for the repair work. SMC was asked to do the repair work assessment and the entire repair work supervision at the Yard. Since no floating dock was available at the Yard during that time and due to the urgency in carrying out the repair work, it was decided to carry out floating repair work with trimming the vessel by aft. The repair assessment was carried out by SMC supervisors and DNV GL surveyors, and the repair plan was finalized and accepted by the Class Society. Damage occurred on shell plate, web frames and stringers in way of fore peak tank, void space and No.1 cargo hold (port). The vessel was Korean built, hence the lines plan for the hull form was not readily available and offsets for the double curvature shell plate was taken from the non-damaged starboard side shell plate using hanging platforms.

New shell plates were cut and formed and internal members were fabricated and the repair work was carried out successfully and timely by using a combination of hanging platform, floating crane and barge. All the NDT work (UT and RT) and air test were carried successfully and handed over to painting department for the coating work. Work was on-going in two shifts 24 hours during the last one week.

The repair work was completed on 28 April and the vessel sailed out on 29 April. The total steel weight renewed was estimated as approximate 57 tons.

Bernhard Schulte Shipmanagement – Services

- Crew Management
- Technical Management
- **Chartering Services**
- **Maritime Hospitality Services**
- Newbuilding & Conversion Supervision
- Travel Services
- Technology Solutions

Chartering Services

Established in 1976 in Cyprus, Hanseatic Chartering Ltd. (HC) has been serving shipowners by offering its experience in commercial management, competitive chartering, sale and purchase.

As part of commercial management activity, HC is contracted to perform the commercial management of vessels, trading worldwide. Commercially managed fleet includes container vessels, bulk carriers, LPG carriers, chemical carriers and product tankers.

Competitive chartering activities are focused on negotiating and concluding periodic charters for vessels of all types. One of the major factors behind its success in becoming the leading brokers in this area has been its absolute commitment to delivering high quality service. Continuous analysis of market trends and close watch on emerging opportunities in a rapidly changing environment allow HC to offer up-to-date advice to Principals.

Activities in the sale and purchase market consist of broking services for the sale and purchase of second-hand vessels, as well as the placing of newbuilding contracts with shipyards.

The very extensive network of contacts provided by Schulte Group assists Hanseatic Chartering in ensuring the highest-possible value for money of clients.

HC uses modern search and selection methods to ensure that its employees not only have the required professional qualifications, but also the required personality. In addition, HC is fully committed to the professional development and education of all staff.

Bernhard Schulte Shipmanagement is constantly investing in upgrading and expanding its training facilities. This approach and the network of Crew Service Centres and Marine Training Centres in several major seafaring countries, give HC a real competitive edge in the market.

Maritime Hospitality Services

Seachef is the maritime catering arm of Bernhard Schulte Shipmanagement and provides shipowners and shipmanagers with comprehensive onboard hospitality services.

Starting with a modest fleet in 1994, Seachef today caters to the tastes and food preferences of over 18 nationalities onboard over 180 vessels and is still growing constantly.

Moving away from the traditional victualing model, which meant food served up by cooks with little training and catering experience, managed by increasingly time-stretched Masters working with a casual purchasing system, Seachef has revolutionized onboard catering.

An ISO 9001-2008 certified organization, Seachef has

- introduced trained shore professionals onto ships.
- provided formal shore training to Ship's Cooks for more versatility in cooking and better menu planning.
- trained Ship's Cooks in onboard paper work and inventory planning and control, so as to free up Masters for more important work.
- trained Cooks and Stewards to standards of hygiene and housekeeping applied in the hospitality industry ashore.
- made strategic alliances with reputable ISO certified and ISSA-registered suppliers worldwide to ensure reasonable costs and high-quality provisions for vessels both in port and under way.

The net result is well-fed, satisfied crew, satisfied shipowners - and a steadily growing catering business.