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BC Ferries invests in LNG

The latest 0.1% Sulphur Directive effective since January 1, 2015 has left the shipping industry with three possible choices on how to respond to the latest fuel requirements within the Emission Control Areas (ECAs): switch to Low Sulphur (0.5%) Marine Gas Oils (LSMO), install SOx scrubbers, or convert to alternative marine fuels such as Liquefied Natural Gas (LNG). These new regulations are supposed to be implemented at a global level on all shipping vessels by 2020.

Sales of scrubbers over the last year have been hit by cheaper bunkers, with ultra-low sulfur fuels becoming more attractive financially due to the low cost of crude. As long as oil remains low, shippers are likely to turn to ultra-low sulfur fuels for Emission Control Area compliance instead of scrubbers.

OPEC has released an interesting study on the impact of lower oil price assumptions on the penetration of LNG vessels. The study concludes that LNG has the potential to become an important marine bunker fuel in the long-term. The use of LNG in marine bunkers could be a cost-effective alternative to addressing the new IMO regulations as it offers a chance for shipping companies to save on fuel costs, even though under the current lower oil price environment, the savings advantage of using LNG could be far less than anticipated.

What is more, according to a survey recently released by MEC Intelligence, around 20% of shipowners worldwide are opting for LNG as compliance fuel, with the majority of retrofit and newbuild orders recorded within the passenger industry.

One of the top investors in the LNG technology is Canada's ferry operator BC Ferries. Back in June 2014, the company awarded Remontowa Holding a contract to build three dual-fuelled intermediate class ferries of the Salish Class, capable of using both LNG or diesel fuel for propulsion. These ferries are currently under construction at our newbuilding yard.

And now BC Ferries has entrusted us again, this time with the Spirit Class vessels mid-life upgrades including conversion to dual-fuel so they can operate on LNG. The ferries concerned, the Spirit of Vancouver Island and the Spirit of British Columbia operate on the busiest route between Swartz Bay and Tsawwassen and consume more fuel than any other vessels in the BC Ferries' fleet.

We have a strong record both in building of vessels using natural gas and switching vessels' propulsions to LNG and other alternative fuels. In 2015 Remontowa Shiprepair Yard converted the Stena Germanica ro-pax ferry propulsion to methanol, which has drastically reduced emissions compared to today's standard fuel. On the other hand since 2009 we have built as many as 12 LNG driven vessels with 11 ferries among them.

All of these elements factored heavily into the decision of contract award. The upgrades, which will be part of the normal mid-life span upgrades for the ferries, will also include modifications to the hulls to make them more fuel efficient. Further fuel savings will be made by coating the hulls with a low friction coating and modifying the dated bow and stern designs from to further reduce drag.

Grzegorz Landowski
Editor-in-Chief



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REMONTOWA
HOLDING

We will convert Canadian ferries to LNG propulsion

Green ships of the future

BC Ferries revealed the winner of the mid-life upgrades contract for Spirit-class ferries. The vessels are to be converted to operate on liquefied natural gas (LNG).



Wärtsilä has been awarded a comprehensive scope of supply to convert the two RoPax ferries for BC Ferries for LNG operation.
Fig. Wärtsilä

Following the completion of a competitive bidding process, BC Ferries has awarded Remontowa Ship Repair Yard SA of Gdansk, Poland a contract totalling \$ 140 million to conduct the Spirit-class mid-life upgrades (MLUs), which includes the conversion of both vessels to dual-fuel, so they can operate on LNG, beginning in 2017 and completing in 2019.

BC Ferries conducted an extensive competitive bidding process to ensure that the company secured the best bid for its customers and the taxpayers of British Columbia. One shipyard from B.C., Seaspan's Vancouver Shipyard, was among the three companies short-listed and invited to participate in the RFP process, however decided to withdraw from the process. The other of the

three shortlisted bidders was Fincantieri of Italy.

Remontowa Ship Repair Yard as the largest ship repair yard in Poland and one of the largest in Europe has a strong record for delivering the required engineering and production capabilities for complex large scale conversion projects on schedule. The company is well experienced and proven with LNG fuelled ships. All of these elements factored heavily into the decision of contract award.

"Last fiscal year, we spent approximately \$ 118 million on diesel fuel of which the two Spirit-class vessels consumed approximately 16 per cent," said Mark Wilson, BC Ferries' Vice President of Engineering. "The conversion of the two largest ships in the fleet along with the three new dual-fuel Salish-Class vessels currently under construction [at Remontowa Shipbuilding in Gdansk – red.] will go a long way

to help with fare affordability for our customers as LNG costs significantly less than marine diesel. In addition to the financial benefits of LNG, BC Ferries is committed to converting to more environmentally-friendly fuel sources to improve our environmental footprint" – said Wilson. "By utilizing LNG to fuel the Spirit-class vessels, we expect to reduce CO₂ emissions by 12,000 tonnes annually, which is the equivalent of taking approximately 2500 vehicles off the road per year." – he added.

As BC Ferries reveals in its press release, in order to help make the project financially viable, the company pursued funding under incentive programs to help offset any incremental capital costs associated with the use of LNG. BC Ferries has signed an agreement, subject to certain conditions, to receive up to \$ 10 million contribution from FortisBC Energy Inc. as part of the Natural Gas for Transportation ("NGT") incen-

tive funding. This funding will be used to partially offset the capital cost of converting the two Spirit Class vessels to dual fuel capability.

In addition to the LNG conversion, safety systems will be renewed or upgraded including the marine evacuation systems, rescue boats, fire detection system, public address system and installation of a local water mist fire protection system. The passenger areas will receive an interior design refresh including new carpeting, renewed washroom interiors, an additional washroom on Deck 5, expanded gift shop and new coffee bar on Deck 6. Upgrades to the passenger elevators include renewal of mechanical and electrical drive components, emergency communication system as well as upgrades to the electrical and control systems. Planned renewal of navigation equipment, propulsion equipment components including rudders, steer-

ing system, bow thrusters and propeller blades will also occur during the MLUs. Installation of LED lighting and more efficient air conditioning equipment will reduce energy consumption.

The two ferries will feature Wärtsilä gas solutions. The full scope of Wärtsilä's supply includes four 34DF dual-fuel engines with fuel gas systems, integrated automation systems and power management systems, the Pro-Touch propulsion control system, the power transmission systems comprising two gearboxes, the LNGPac comprising the fuel storage tank, bunkering station, gas detection system and process control automation, Wärtsilä rudders, site representation and integration engineering, and crew training.

The upgrading work will involve surveying the stern tube and renewing components, surveying and overhauling the controllable pitch propeller (CPP) hubs, redesigning and renewing

the CPP propeller blades, surveying, renewing and overhauling the oil distribution boxes, and renewing two bow thrusters and motors.

Mark Wilson, vice president engineering, BC Ferries, said: „We appreciate the detailed engineering and attention to schedule that Remontowa and Wärtsilä have undertaken for the completion of this project. The broad scope of equipment needed heightens considerably the importance of systems integration and LNG experience."

Lucjan Falkiewicz, project manager for BC Ferries' mid-life upgrade project, Remontowa, added: „This is an extensive project involving both conversion of the ships to upgrade their performance, as well as the gas conversion work. Fortunately, we have worked in the past with Wärtsilä and have good confidence in both their solutions and their capabilities."

BC Ferries is planning for the *Spirit of British Columbia* to be the first ship through the MLU and LNG conversion process and commence actual conversion from the fall of 2017 through the spring of 2018, and the *Spirit of Vancouver Island's* to follow the following year from the fall of 2018 through the spring of 2019. This schedule will allow for these two vessels, the largest in the fleet, to be in operation during the summer months when traffic is at its peak.

The *Spirit of British Columbia* was built in 1993 and the *Spirit of Vancouver Island* was built in 1994. BC Ferries plans to operate these two vessels for another 25 years. Both ships service the Tsawwassen – Swartz Bay run, the busiest route in the fleet. Under contract to the Province of British Columbia, BC Ferries is the service provider responsible for the delivery of safe, efficient and dependable ferry service along coastal British Columbia. ●

The *Spirit of British Columbia* ferry approaching Swartz Bay.
Photo: West Coast Photography



Mark Wilson: *We do it for both economic and environmental reasons*

BC Ferries switches to LNG!

World Maritime News has conducted an interview with Mark Wilson, Vice President of Engineering at BC Ferries. We are presenting some excerpts.



Mark Wilson during his visit in Remontowa Holding in 2015..

- Has BC Ferries' business operation been affected by the new sulphur requirements and, if so, in what way?

- BC Ferries hasn't been affected by the new requirements because we have been using ultra low sulphur fuel for several years now. We've been meeting or exceeding these new environmental requirements for several years so we do not see it impacting our business.

- What is the most cost-efficient option for ferry companies to meet the new requirements? Alternative fuels, retrofits, scrubbers or maybe a combination of various solutions?

- In our case it is a mix of options. We continue to burn ultra low sulphur diesel, convert some of the existing fleet to LNG where there is a business case, and finally introduce LNG in our new-build program.

- What are the greatest challenges at the moment when switching to more ecological solutions regarding ship design and performance of vessels?

- One of the bigger challenges for us is understanding and getting certainty around the rules and regulations in Canada of LNG-fuelled ferries as they are new to Canada.

- Would you say that LNG is a widely-accepted option among ferry businesses?

- We have seen a considerable uptake in LNG-fuelled ferries over the last 10 years and believe that trend will continue for both economic and environmental reasons. In North America we are starting to see other operators making the switch to LNG.

- Has the conversion of the *Spirit of Vancouver Island* and the *Spirit of British Columbia* been in any way affected by the recent significant drop in oil prices?

- While the price of oil has recently decreased, there is still a significant difference in the price of diesel and the price of LNG, which is abundant here in British Columbia. One needs to keep in mind that we build vessels for a 40-year life and believe that there will continue to be a price differential in BC between LNG and diesel.

- Over the next 12 years, BC Ferries plans to invest over CAD 3 billion in fleet renewal, IT systems and marine structures. Are there any concrete plans so far on potential new orders?

- We have at least 10 ships to renew over the next 10 – 12 years and LNG will most likely play a role in several of those vessels.

- What course do you see the ferry industry taking in the next decade? What kind of technological developments can we expect?

- We have some smaller vessels as well as some shuttle ferries to build in the future, so addition to LNG, we will be working with industry and other ferry operators to explore possibilities in hybrid, electric and fuel-cell technologies. We will look to new technologies and efficiency in order to continue to deliver a safe, reliable and cost-effective service, while reducing our environmental impact. ●

Source:
World Maritime News

Repairs and upgrade of the *Safe Bristolia* rig completed

Back to the North Sea...

Extensive range of works have been completed on semi-submersible accommodation platform *Safe Bristolia* hosted at Remontowa for the second time. Two another offshore projects are also underway



Installation of the Liebherr deck crane 17 metres high and weighing 70 tons on-board the *Safe Bristolia*. The crane was lifted up 44 metres in the air and then precisely lowered onto the rig's deck.

After undocking in April, on Wednesday, May 4, 2016, before noon, the tow of *Safe Bristolia* commenced with the 75 m long, 16,000 horsepower AHTS *Terasea Eagle* heading for the North Sea.

in the evening on the same day, the tow of *Safe Bristolia* commenced with the 75 m long, 16,000 horsepower AHTS *Terasea Eagle* heading for the North Sea.



Safe Bristolia (on the right) while being towed out from Remontowa SA passing by the *FPF-1* unit (on the left) which is nearing completion.
Photo: Jerzy Uklejewski

Safe Bristolia was expected to commence its next job in May, within the UK sector of the North Sea. According to some press reports, the mobile offshore unit will be deployed in the northern part of Everest offshore oilfield, 233 km East of Aberdeen.

Let us recall January 16, 2015, when the accommodation platform *Safe Bristolia* arrived, towed from Scotland, after having experienced some difficulties in rough, winter weather in the North Sea.

During 23 and 24 January, a successful docking of *Safe Bristolia*, weighing some 10 000 ton, was carried out onboard a submersible heavy-lift

barge *Rem Lift 25 000*. The 25 000 dwt capacity, 140 m long and 44 m wide submersible is able to lift and dock considerably larger mobile offshore units as well and, if needed, may be easily converted to larger dimensions and payloads.

Safe Bristolia has been the fourth offshore platform and the fifth object to be lifted/docked onboard *Rem Lift 25 000* at Remontowa SA. It is also the 12th unit of various platforms to be repaired, upgraded and/or converted at Remontowa SA to date. Two of the dozen, including *Safe Bristolia*, have been returning to Remontowa. Thus

the current refurbishment of *Bristolia* is the 14th Remontowa's contract for servicing of a mobile offshore unit.

The recent one has been already the second visit of this offshore unit at Remontowa SA, member of Remontowa Holding. Earlier, from October 2010 till May 2011, it was undergoing extensive repairs, maintenance and upgrade.

This recent time, in turn, she has arrived at Remontowa SA for general repairs, including 5 year class renewal, maintenance and protective coatings application works, works inside tanks and some other tasks, including

sizeable steelworks. Two deck cranes were replaced with new ones.

Safe Bristolia is a 1983 built and 2006 converted moored semi-submersible accommodation vessel with beds for up to 588 persons and equipped with telescopic gangway (35.0m +/- 6.0 m) and 8 point wire winches mooring system.

Not only the *Safe Bristolia* itself is returning to Remontowa SA for its quality and competitive services, but her Owners, Prosafe as well. Prosafe, which is the world's leading owner and operator of semi-submersible accommodation vessels, has already brought several

such units to Gdansk based Remontowa SA for repairs or modifications and upgrades.

There are also two other major offshore projects underway at Remontowa. One is nearing completion. That is the *FPF-1*, a semi-submersible based production facility. The last hull steelworks have been carried out recently, while Owners' and suppliers' service teams have been finishing with last trials and tests of the processing plant.

In another significant offshore job, the *Martin Linge* FSO Project - conversion of the shuttle tanker *Hanne*

Knutsen into a monohull Floating Storage and Offloading system, the unit was docked in our largest floating dock from January 16 through April 5, 2016. Most of the steelwork is nearing completion. Most of what has been prepared as prefabricated structures, is practically in place, installed onboard. Only poop deck and a helideck still remained to be installed, as we went to press. Both, are obviously, completed in prefabrication and waiting for installation. In general terms, some 40 percent of works planned for this conversion have already been completed. ●

Fruitful cooperation with Subsea 7

DSV as right as rain

A leading offshore and subsea engineering company has entrusted us with an upgrade and repair of its third vessel in a row.



In February last year, Remontowa SA extensively serviced modern, large ROV, diving support and construction vessel *Seven Atlantic* (144,70 m LOA), in December - *Seven Falcon* (120,21 m long), while on January 22, 2016, Gdansk welcomed *Seven Osprey* (101,71 m in length over all) arriving at Remontowa Shiprepair Yard SA. These three complex vessels serviced within a year at Remontowa SA belong to leading, Luxemburg registered, UK

based offshore & subsea operator - Subsea 7.

The company is active in subsea engineering and services, mainly in energy sector operates more than 40 ships in its fleet, featuring impressive equipment onboard and consisting of vessels ranging from high-performing global pipe-lay and heavy construction enablers to activities. versatile support vessels for flex-lay, light construction and diving and remote intervention

Seven Osprey - diving and light construction support vessel is the oldest ship in versatile and modern fleet of Subsea 7. It was built in 1984, while the ships serviced at Remontowa in the last year (*Seven Falcon*, *Seven Atlantic*) are just around five years old. Even though it is not new, the ship is tough and capable, performing very well.

The DNV GL classed and Liberia flagged vessel features deadweight capacity of 3104 ton, 101.71 m LOA,

21.6 m beam and 5.4 m draught. It was the first ship on the North Sea with DP3 system.

Seven Osprey has undergone an extensive range of works at Remontowa, including six drives with dismantling and overhaul at workshop, full overhaul of two thrusters electric motors, three generators, wide program of works on two offshore deck cranes (150- i 40-ton SWL units), overhaul of the diving bell handling

system and maintenance of the two diving bells, hull maintenance, full overhaul of the safety systems (navigation, fire fighting), modification of electrical diving support related systems, inspection of coolers, repairs to Cort propeller nozzle, some steel replacement in tanks, galley sewage piping replacement, sanitary piping cleaning and other minor works.

The vessel departed from the shipyard on February 15. ●

Seven Osprey docked at Remontowa SA.

On the previous page: a Subsea 7 crew with a ship's master Richard Walters (first on the right) together with people of Remontowa involved in the project underneath the ship.

Photo: Piotr B. Stareńczak

Read an interview with the cpt. of the ship on the next page.

Seven Osprey
maintenance and repairs
break in a busy offshore
vessel life

She is old and... strong

We interviewed cpt. Richard Walters, master onboard *Seven Osprey* diving support and light subsea construction vessel during its stay at our shipyard.



- How old is this “lady in red” known as *Seven Osprey*?

- She is 33 years old.

- ...and how is she doing these days?

- Very well. For the ship of her age it's not bad at all. As we have found at the yard she needs some steel replacement, but generally, she is a good, strong ship. She is one of the oldest diving support and construction vessels in our fleet and she is still going strong.

- So what is the range of works at Remontowa this time?

- Mostly thrusters works, engine room works, some steelwork and hull maintenance works in dock, also some repairs to cranes, etc.

- Are you satisfied with the progress and quality of works?

- Oh, yes. I am for the first time at this year and I am very impressed with the yard.

- Please, be so kind as to tell us of some of the most interesting jobs this ship has done.

- She is working mostly on the North Sea. That's where she spent the last few years doing maintenance contracts for various offshore companies. There is a group of oil companies that have an agreement together and they share hired Diving Support Vessel service among different companies. So, one week we could work for Nexen, next week we may work for Talisman...

With this ship, we really don't do big projects. We do mostly maintenance around rigs. Recently, for example, we were working for a client that was changing the cathodic protection on one of their platforms and going from traditional sacrificial anodes with active electric current system with devices based some two-three hundred meters away from the platform with a cable back to platform. This is a new way of providing cathodic protection against corrosion. The work of divers deployed from *Seven Osprey* was required and some crane work. We were installing subsea structures ten tons a piece. We also installed risers for control cables. That was a good job. I enjoyed that.

Working along platforms is obviously a bit more demanding and challenging comparing to works in open waters.

- Given the current situation on the offshore market, how many jobs the ship has secured?

- She has some work confirmed for this year. And we are hoping, obviously, to pick up more as the year goes on. After summer there is not much new construction work, but all companies still have maintenance to do, they still have equipment to repair... So we should be okay for this year. And better again in 2017.

- How Subsea 7 has responded to changes in the offshore market?

- Subsea 7 in current incarnation has already been going for a couple of

years. There was Subsea 7 and a company called Acergy before that, and they merged some three years ago now, into the largest subsea construction company in the world now since there had been no place for two large competitors on the market. Before that there were mergers of four small companies. So I think Subsea 7, as a name, has been going for about nine-ten years.

Currently our company operates around 40 ships, mainly offshore construction vessels, diving support vessels, pipe lay vessels. We do a lot of deepwater pipe laying operations in Brazil. We also operate in the Far East, Australia, Gulf of Mexico and obviously the North Sea and other regions.

- Do you like the offshore business? What was your career path on the sea?

- I enjoy that. I left school at 17 and I went straight to sea. I started with Shell Tankers in 1977. So, first I was on apprenticeship on tankers, then I moved on to general cargo ships for a few years. I joined the offshore industry in 1987. At first it were diving support vessels, with this company, with previous incarnation of this company. Later I went on to the floatels, I used to work for Prosafe. I spent seven years working for them. Then, eight years ago, I came back to Subsea 7 DSV's and have been working on these since. ●

Exceptionally difficult and precise task on
Pont Aven

Scrubbers, engine, funnel and more...

One of the most extensive upgrade jobs completed this year so far at Remontowa, was that associated with car and passenger ferry *Pont Aven*, named after famed French "town of painters" and operated between French, British and Spanish ports.



Pont Aven during final works at Remontowa.
Photo:
Jerzy Uklejewski

The ro-ro/passenger vessel, built in 2004 at German Meyer Werft, featuring 184.60 m LOA, 30.90 m beam, 4803 dwt; 652 cabins, 2400 passenger capacity, 80 cars) arrived at Remontowa SA on January 9, 2016 and remained in Gdańsk for approximately two months.

Among the main tasks commissioned there have been: fabrication and installation of new funnel (some 49 ton) and surrounding structures to house scrubber installation (the works applied both to steel and aluminium structures, totalling some 100 tonnes of newly added or replaced structures); scrubber system installation; lifeboats taken off the ship for repairs and maintenance; replacement of oil sumps on main engines; replacement of windows glazing; hull maintenance works (application of silicone coating patches in worn areas; it is worth mentioning that the ferry received its silicone coating during its previous Remontowa SA stay, four years ago).

Four large medium-speed diesels, the MaK 12V43C engines have been overhauled and repaired. This, however, was not a routine engine repair case. Instead, this was a complex job, engaging relatively large number of specialists and successfully completed with an innovative, non-standard production technology solution applied. The mentioned four main engines, weighing 160 tonnes each, had to be partially dismantled for overhauling and repairs.

The procedure included replacement of four oil sumps, which required removing these large, heavy and awkward bottom engine parts from the engine room and placing new ones, with associated transport issues within the vessel's compartments. Normally (and with the solution assumed and expected by the Owners initially) the whole engines or the oil sumps would be removed from the engine room and from the ship's hull via the special, temporary openings cut in vessel sides in underwater part. This would require staying of the ship in dock for much longer time comparing to usual docking and would generate extra costs.

W-1/2 department of the shipyard, commenced careful planning and preparations for the complex operation, already a few months before the ship's arrival. As early as July 2015, representatives of the yard visited the Owners in Roscoff in France, to suggest a new, more clever solution, which attracted the interest of the Owner, along with the yard's vast experience in scrubber installations,

which contributed to awarding a contract.

For each of the four engines, first, the engine block had to be raised, after decreasing the engine weight to some 90 tonnes by dismantling of several hundreds of engine parts (that would have to be done anyway), moving them to workshop for measurements and overhauls, with some replaced.

Then, the oil sump was carefully removed from underneath the raised engine for transport off the ship the Remontowa way - without cutting the production openings in ship's sides and without cutting of much of ship's internal structures. The method presented and, after approval from the Owners, executed by the shipyard, proved to be cheaper and much faster. The Remontowa's solution enabled to avoid cutting additional openings in car deck, as well as it enabled to avoid dismantling of large turbocharger exhaust gases manifolds and their foundation structures and last, but not least, it enabled to avoid dismantling of large areas of bulkhead insulation. A lot of time and labor have been saved, which contributed to cost cutting, especially by shortening of docking time, and unnecessary temporary "devastation" of the car deck has been avoided. In fact, the Remontowa's solution, has not required the ship to stay in dock for the operation of removing the oil sumps at all, so the ship spent in dock just the amount of time required for hull maintenance and some other, typical, repairs in underwater part of the hull, propellers and appendages.

However, for six weeks, the intensity of works was very significant, indeed, requiring engaging relatively large number of specialists from the yard and subcontractors and dedication even during Easter holidays, as the sea trials were completed just on the second day of Easter.

Another major tasks accomplished during recent *Pont Aven's* stay at Remontowa were the IMO2 Conversion, i.e. installation of scrubbers and modification of the whole fuel system (with the final phase of the latter under supervision of engine manufacturer specialists from MaK, Germany).

In peak moments as many as 100 employees and subcontractors have been engaged on this project daily. ●

Navigator Gusto with Ballast Water Treatment system installed

Upgraded gas carrier in new livery



Ballast water treatment (BWT) system installation has not been the only significant item in specification of the *Navigator Gusto* gas carrier's repairs and upgrade during recent class renewal yard stay.

Until March 2013, the ship had been operated by Maersk under *Maersk Gusto* name and wearing a "Maersk blue" livery, which remained on ship's sides until recent arrival to our yard. However, the gas carrier left Remontowa in dark orange livery and a new funnel mark representing the new owner. Already in the eighties, a serious danger for the maritime environment, build-

ing up through global transfer of ballast tanks water was discovered and first investigated by shipping industry related research establishments.

While ballast water is essential for safe and efficient modern shipping operations, it may pose serious ecological, economic and health problems due to the multitude of marine species carried in ships' ballast water. These

include bacteria, microbes, small invertebrates, eggs, cysts and larvae of various species. The transferred species may survive to establish a reproductive population in the host environment, becoming invasive, out-competing native species and multiplying into pest proportions.

According to IMO, the spread of invasive species is now recognized as

one of the greatest threats to the ecological and the economic well being of the planet. These species are causing enormous damage to biodiversity and the valuable natural riches of the earth upon which we depend. Direct and indirect health effects are becoming increasingly serious and the damage to the environment is often irreversible.

After more than 14 years of complex negotiations between IMO Member States, the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) was adopted by consensus at a Diplomatic Conference held at IMO Headquarters in London on 13 February 2004.

Ballast Water Treatment is effected in varied ways and with diversified technologies applied. These include: chemical disinfection, ozonation, the removal of oxygen, filtration, irradiation of UV (ultraviolet rays damage microorganisms or prevent their reproduction), generating ultrasound (oscillation of high frequency, resulting in destruction of microbes), the ballast water heating to a temperature of 45 degrees Celsius, etc.

There are some 20 major specialised manufacturers on the market of water ballast treatment systems for ships. Some ships are still lacking such, IMO compliant, systems. Dawid Piaskowski, manager from British, American and Far East market commercial office, recalls that Remontowa has already carried out 10 installations of BWT systems onboard ships.

Navigator Gusto has had a new, compact system from Trojan Marinex installed, utilising filtration and UV radiation. As the manufacturer emphasises, the system effectively "cures" the ballast water, preventing the invasive species from spreading.

As far as the repairs are concerned, *Navigator Gusto*, was also subject to

main engine overhaul, installation of the two stainless steel systems on deck: compressors liquid nitrogen removal system and not liquefied gas system.

Lots of minor piping and electrical modifications have been also carried out, in addition to installation of stern tube seals, seawater valves overhauls, safety valves overhauls, mooring ropes and wires replacement, load tests, accommodation ladder tests, etc.

Navigator Gusto is a LPG tanker, built in 2011, 154.3 m long, 25.2 m wide, drafting 6.4 m and featuring deadweight capacity of 16 687 ton. The Liberian flagged, Monrovia registered ship has arrived to Remontowej SA from Dutch port of Terneuzen.

Navigator Gas operated vessels are not the completely new sight at Remontowa. In September 2013 we were servicing the *Navigator Capricorn*, while the *Navigator Scorpio* in April 2014. However the first vessels have been brought by Navigator Gas as early as 2008-2009.

Navigator Gas Shipmanagement has not been hit by recent crisis in freight rates on the shipping market. What is more, Navigator Gas strengthens its fleet.

- Currently we own 30 vessels, all being gas carriers. Until the end of this year there will be 38 of them, as eight units, under construction now, will be delivered and added to our fleet from Chinese and Korean yards. We operate a few 15 years old ships, but most vessels in our fleet are not older than 5 up to 8 years - Piotr Hinz, senior superintendent of Navigator Gas explains.

Polish ship management division of Navigator Gas currently manages four ships, with much more to be added soon. The co-operation is satisfactory for both parties - as confirmed by Piotr Hinz, who hopes for contacts with Remontowa to be long-term business relationships. ●

Navigator Gusto left the Remontowa yard with a BWT installed and in the new livery.
Photo: Adam Graczyk

Nitta Kisen Kaisha joined a list of our Clients

Giant box ship docked



We have hosted the largest vessel in terms of its hull volume, which entered our largest dock. The container carrier was brought by the Japanese owner.

In October and November, last year, two quite a large container vessels were serviced at Remontowa - namely: *Seago Antwerp* and *Seago Felixstowe*, 293.9 m in length and 32.2 m wide, each. These are not only big, but also feature effective, large diameter, 92-tonne propellers - largest to be seen at the yard so far.

After repairs the large container vessels left the shipyard, and, after just a month, another large box carrier arrived, with even bigger propeller, weighing 101.3 tonnes. *Glen Canyon Bridge* belongs to Japanese owner Nitta Kisen Kaisha Ltd., who was the Client of Remontowa for the first time on this occasion. The vessel, plying the Panamanian flag, is operated by renowned shipping company "K" Line in Europe-Asia liner services.

Named after the famous, then world's largest in its class, arch bridge,

Glen Canyon Bridge built in the 50-ties over the Colorado river in Arizona, the ship itself was built in 2006 at Korean yard Hyundai Heavy Industries of Ulsan. It features 71 291 t deadweight, 6642 TEU container capacity, 284.71 m length over all, post-panamax 40 m beam, max draft of 12.5 m and service speed of 25 knots.

Glen Canyon Bridge is the largest hull volume vessel to be docked in Remontowa's largest dock no. 6 so far. There were somewhat longer vessels (Danish container vessels, 294 m long), but those were more slender (at panamax - 32.2 m beam). There were also some shorter ones (such as 250 m long), but even wider (at 44 m beam) instead.

The Japanese container vessel also features the largest propeller of all ships serviced by the yard to date. It weighs a whopping 101.3 tons. It trans-

lates into considerable size of other items of ship equipment as well, such as the propeller shaft.

Among the works commissioned for the ship's stay at Remontowa, there were the overhaul of six cylinder systems of the main engine, overhaul of the tunnel thruster, replacement of some piping, modifications to fuel system, washing of holds, repair works on 18 offloaded hatch covers (steelwork, sandblasting, painting), replacement of 23 container sockets, overhaul of sea water valves and last, but not least - maintenance and painting of hull, when docked. ●

Giant *Glen Canyon Bridge* departing from the Remontowa SA.

Photo: Adam Graczyk



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