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CONTENTS

Secure of navigation safety remains urgent problem despite complex automation and centralization of control over correct operation of ship equipment. Numerous surveys of shipwrecks and accidents show importance of human factor in their occurrence. The authors hereby analyze technical aspects and physical capabilities of a marine engineer and come to the conclusion that conventional automated vessel raises greater demands to crew qualification (above the minimum level of those accepted by the Convention) and requires staff training to continuously advance their curriculums and special training programs.

Berestovitsky E. G., Zommer G. V., Zimatsky M. A. **Experimental surveys of regulation system for feed water supply to steam generator**

This article reviews results of testing the software for flow rate meter comprising feed water control loop of steam generator. Influence of adjustment of flow rate meter on transition quality inside control loop is demonstrated. Operation results allow to select optimal software for flow rate meter to obtain finest adjustment of feed water consumption in steam generator.

MARINE EQUIPMENT

Kuprina E. E., Kirillov A. I., Bobylev V. S., Brosalina A. A., Drozdov V. V. **Advantages of electrochemical technology for purification of ballast water of fishing vessels from biological contamination**

In order to decrease ecological, epidemiological and other stresses inflicted to water environment due to discharge of unpurified ballast waters from vessels, the IMO accepted (12.02.2004) the Convention on control and treatment of ship ballast waters and fallouts which is applied to all types of civil vessels. JSC Giprorybflot developed efficient low-cost technology and modular equipment for vessels of 50–500 m3 ballast water capacity. Ballast water gets purified in special electrolytic cells of original design (two types) which simultaneously synthesize oxidizers (generated in course of seawater electrolysis) and nanobiocide, which significantly enhance the purification effect of oxidizers. Their combined action reduces active oxidizers concentration rate required for bactericidal effect and increases its duration in comparison with conventional electrochemical technologies.

Kuprina E. E., Kirillov A. I., Bobylev V. S., Brosalina A. A. **Innovation technology and modular equipment for purification of ship ballast waters from biological contamination using electrochemical method**

There are various methods for purification of ship ballast waters. Most known are: deoxygenation, ozonation, ultraviolet radiation, electromechanical partitioning, cavitation. Available purification equipment (mostly of foreign manufacture) is capable to apply several decontamination methods and therefore their price is very high (250.000–5.000.000 US dollars). In order to solve this problem, JSC «Hyprorybflot» manufactured modular equipment for purification of ballast waters from biological contamination using only electrochemical method. This allows to obtain 100% purification rate due to original design of electrolytic cell and combined effect of electrochemically synthesized oxidizers and nanobiocide from seawater.

Flidleader V. E., Klyukvin O. N., Solodchenkov E. V**. Volumetric pump for deepwater vehicle**

This article reports, that specialists of JSC LGM developed high-pressure pump «CKAT-1100» purposed to operate on deep-diving (up to 11 000 meters) manned vehicles.

Rytkov S. N., Avdeyenko M. V. **Deck ventilation of sea oil and gas tankers using swirling jets**

The authors hereby narrate about deck ventilation system with central-hollowed axial-vane swirler, which emits swirled jets thus preventing formation of stagnant fire and explosion dangerous areas on LNG-carrier or tanker decks. Application of swirled jet intensifies air mixing in whole volume ventilated and therefore increases ventilation efficiency.