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Editorial Board

Abstracts

Technological Aspects of Spent Nuclear Fuel Management and Enhancement of Nuclear and Radiation Safety during Environmental Remediation of Former Coastal Maintenance Base in Chervyanaya Bay (Gremikha)

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NRC 'Kurchatov Institute'

A variety of scientific, technical and organizational measures for the handling of spent nuclear fuel of the first-generation nuclear submarines with VVR stored at Gremikha (Northwest Branch of SevRAO) is considered. Their implementation has enabled the removal of all spent fuel assemblies (898 pieces) to PA 'Mayak' for reprocessing and to FSUE 'Atomflot' for temporary storage.

Key words: *coastal maintenance base of the Russian Navy; environmental remediation; Spent Nuclear Fuel (SNF) of the first-generation nuclear submarines with VVR; improvement of the radiation situation up to normal; SNF preparation and removal for reprocessing; methods and tools of diagnostics; standard and ill-conditioned SFAs; non-standard equipment; nuclear, radiation and environmental safety.*

Sources and Extreme Levels of Environment Pollution by Polychlorinated Biphenyls in Business Areas of Russian Companies on the Spitsbergen archipelago (Svalbard)

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The Northwest Branch of RPA 'TYPHOON'

Investigations of the levels of polychlorinated biphenyls in the outer paint coating of business entities in several settlements on the Spitsbergen (Barentsburg, Pyramida and Kolsbey) as well as of soils in their adjacent areas conducted by the Northwest Branch of RPA 'TYPHOON' in 2011-2012 enabled identification of some local pollution sources and the key mechanism of polychlorinated biphenyl spreading over the territory that is transport of peeling off paint by wind.

The disposal of polluted waste followed by its removal to special storage areas is a pressing issue to be solved not only on the Spitsbergen, but virtually across the Arctic coast with a number of abandoned settlements and industries.

Key words: *the Spitsbergen archipelago; the settlements of Barentsburg, Pyramida and Kolsbey; polychlorinated biphenyls; outer paint; soils; dumps.*

Hydrometeorological Support of Navigation along the Northern Sea Route

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In the context of changing Arctic climate the development of observational networks in the Arctic region is analyzed, such network being used to ensure safe navigation along the Northern Sea Route and secure economic activity during exploration of mineral resources.

Key words: *the Arctic cryosphere; hydrometric observation networks; hydro-meteorological and climate monitoring in Polar Regions; hydrometeorological support of navigation.*

Regulation of the Use of Subsoil Resources in the Arctic Countries (the U.S., Canada and Norway)

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The paper addresses legal and institutional problems of the use of subsoil resources in the Arctic countries, the extent of government involvement in the oil-and-gas sector, the principles and guidelines regulating the use of subsoil resources, the methodology for establishing oil funds, the tax system, etc. The analysis is mainly conducted in terms of possible use of foreign approaches and solutions in the Russian practice.

Key words: *use of subsoil resources; governmental regulation; national interests; taxes; rental and licensing relationships; export control; protectionism.*

Importance of the Northern and Arctic Regions in New Geopolitical and Geo-economic Conditions

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Historical aspects of changes in the views on the role and place of the Northern Region in the national security of Russia are considered. High importance of the Northern and Arctic regions in new geopolitical and geo-economic conditions is demonstrated.

Key words: *geopolitical importance of the North; Russian Arctic shelf; the Arctic zone of the Russian Federation; Northern Sea Route; geo-economic development of the North.*

The Geology and Oil-and-Gas Potential of the North American Arctic

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The main geo-structural elements of the North American Arctic are considered along with their related actual status of the oil-and-gas potential of the region being considered the most promising during exploration of the Arctic in the present century.

Key words: *Hyperborean platform; depression; oil-and-gas potential; Beaufort Sea; Sverdrup; diapirs; tectonics; stratigraphy; deposit; stocks; oil; gas; condensate.*

'EnviMine' International Project: Developing Environmental and Geodynamical Safety Related to Mine Closure in the Barents region

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A summary of the results of joint research of Russian, Finnish and Swedish scientists during the first phase of the 'EnviMine' International Project is provided. This project is developing quite dynamically and is aimed at ensuring environmental and geodynamical safety in the Euro-Arctic Barents Region.

Key words: *'EnviMine' International Project; Barents Region; mine closure; environmental and geodynamical safety; field investigations; Umbozero mine; water chemistry.*

A Consideration of Risks in the Construction and Operation of Offshore Wind Power Plants in the Arctic

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Risks associated with the construction and operation on the Arctic shelf of power plants using renewable energy sources are considered by example of an offshore wind power plant. Risk analysis is given for such elements of the transport-and-energy complex that provide the construction and operation of offshore wind power plants.

Key words: *transport-and-energy complex; the Arctic; risks; construction; operation; offshore wind power plant.*

Failures of Steam Generator Pipe Systems at Nuclear Powered Vessels: Analysis of Possible Causes and Mechanisms

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The experience in operating steam generators of nuclear powered vessels is reviewed and summarized, and the results of analysis of their actual reliability level and trends are presented. An expert evaluation of possible causes and mechanisms of failure of steam generator pipe systems is provided.

Key words: *nuclear powered vessels; steam generator; pipe system; failure rate; failure mechanism.*

Indigenous Peoples of the Russian North and Petroleum Companies: Overcoming the Risks

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The relationships of indigenous peoples with industrial companies in the Russian North are analyzed. Various practices for establishing a dialogue are considered, and a system of factors on overcoming mutual risks is proposed.

Key words: *indigenous minorities; petroleum companies; ethnological expertise; customary law; federal legislation; international standards of business development; corporate liability.*

Soviet Arctic Ports in the Lend-Lease Program during the First Period of the Great Patriotic War (June 1941 — November 1942)

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The condition of seaports of Arkhangelsk and Murmansk by the beginning of the Nazi aggression against the USSR is considered and their readiness for the USSR military and economic supply by the allies (the U.S. and the UK) using the Northern (Arctic) route during World War II - as part of the Lend-Lease Program - is analyzed.

Key words: *The United States (U.S.); the United Kingdom (UK); the Union of Soviet Socialist Republics (USSR); the Lend-Lease Program; marine transport fleet; transport routes; Murmansk; Molotovsk; Arkhangelsk.*