

*The Freeport of Riga Environment
Report 2009*

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The Freeport of Riga Environment Report 2009

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The Freeport of Riga Authority

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ABBREVIATIONS USED IN THE TEXT

<i>ACC</i>	<i>Activity Coordination Center</i>
<i>DWT</i>	<i>Deadweight tonnage</i>
<i>EC</i>	<i>European Commission</i>
<i>EU</i>	<i>European Union</i>
<i>ISO</i>	<i>International Organization for Standardization</i>
<i>EIA</i>	<i>Environmental Impact Assessment</i>
<i>SPNT</i>	<i>Specially protected nature territory</i>
<i>MIWA</i>	<i>Marine and Internal Waters Administration.</i>
<i>VTS</i>	<i>Vessel Traffic Service</i>
<i>CM LR</i>	<i>Cabinet of Ministers of the Republic of Latvia</i>
<i>LEGMC</i>	<i>State LLC "Latvian Center of Environment, Geology and Meteorology"</i>
<i>PM₁₀</i>	<i>particulate matters (size up to 10 µm)</i>
<i>PM_{2,5}</i>	<i>particulate matters (size up to 2,5 µm)</i>
<i>RCC</i>	<i>Riga City Council</i>
<i>FPR</i>	<i>The Freeport of Riga</i>
<i>FPRA</i>	<i>The Freeport of Riga Authority</i>
<i>Ro-Ro</i>	<i>Roll on /Roll off- vessels designed to carry wheeled cargo such as automobiles, trucks, semi-trailer trucks, trailers or railroad cars that are driven on and off the ship on their own wheels. This is in contrast to lo-lo (lift on-lift off) vessels which use a crane to load and unload cargo.</i>
<i>RED</i>	<i>Regional Environment Department</i>
<i>SES</i>	<i>State Environment Service</i>
<i>HP</i>	<i>horse power</i>

INTRODUCTION

The purpose of the annual Environment report, prepared by the Freeport of Riga Authority, is to provide the freely accessible information on environment quality in the Freeport and work that is carried out by the Freeport Authority to make Riga port ecologically safe and clean, to all interested parties.

The Environment Report 2009 contains information about international and Latvian regulatory enactments, binding regulations issued by the municipalities, the documents, that were elaborated for the Freeport, as well as information related to environment management at the Freeport of Riga, environment quality at the Freeport in 2009, environmental risks, and environment improvement and risk mitigation activities that were implemented.

Information related to the Freeport of Riga and the FPRA is available on the webpage of the Freeport Authority www.rigasbrivosta.lv .

The FPRA is the member of the Sustainable Development Committee of the ESPO (*European Sea Ports Organization*), receiving new information on European Union environment legislation, on European ports experience and activities in the environment protection field. The Freeport of Riga Authority actively co-operates with international organizations – the International Association of Ports and Harbours (IAPH), the Baltic Ports Organization (BPO) and the Cruise Europe Organization.

1. REVIEW OF BINDING REGULATORY ENACTMENTS

1.1. International Documents

This section reviews only main international documents related to environment quality in the ports.

International Convention for the Prevention of Pollution from Ships, 1973, and its Protocol of 1978 (MARPOL 73/78). MARPOL 73/78 is the main international document, covering prevention of pollution of the marine environment by ships from operational or accidental causes. Latvia has ratified MARPOL 73/78 Convention in 1992. Convention requires governments of the states, that have ratified Convention, to ensure activities of ship oily water treatment plant in the port. The plant shall have the relevant capacity to meet the vessel demands and avoid unnecessary delay of the vessel in the port.

Navigation is a sphere of international importance, regulated by global regulations, that are issued by special organizations, including **International Maritime Organization — IMO**; (<http://www.imo.org/>), that has adopted more than 50 international legal instruments (conventions and protocols) and more than 930 resolutions, that have to be incorporated into national legislation. **International Maritime Organization** was founded in 1959 with the aim to enhance international navigation safety, prevent marine pollution, ensure international maritime traffic and provide legal basis. Latvia has been a member of IMO since 1993.

1992 Convention on Baltic Sea Region Marine Environment Protection (Helsinki Convention). Latvia has ratified this convention in 1994. Helsinki Convention is an international document related to protection of the Baltic Sea environment. On November 15, 2007 in the city of Krakov, Poland, Ministers of Environment of the Baltic states and representative of the European Commission approved strategic action plan to diminish Baltic sea pollution and by 2012 reconstruct its good ecological condition.

The aim of **HELCOM Baltic Action plan** is to solve the key problems related to the Baltic sea environment.

International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC). It is Convention of International Maritime Organization. Latvia has adopted this Convention in 2000. Parties to the OPRC convention are required to establish measures to be ready and to deal with pollution incidents, either nationally or in co-operation with other countries.

Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for oil Pollution Damage, 1992. The Protocol requires full compensation for losses caused by oil pollution damage or to the victims of pollution damage as well as facilitating victims' problems in cases when there is risk of available compensation sum being inadequate or unobtainable to cover reasonable claims in full.

International Maritime Dangerous Goods Code (IMDG Code). The Code is accepted as an international guide to the transport of dangerous goods by sea and is recommended to governments for adoption or for use as the basis for national regulations. It is intended for use not only by the mariner but also by all those involved in industries and services connected with shipping. Latvia has adopted the IMDG code in 1993.

1.2. Regulatory Enactments of the Republic of Latvia

All valid environment and nature protection regulatory enactments are related to environment quality in the ports as well as to other economic activities. All regulatory enactments related to environment protection are available on the web-page of the Ministry of Environment www.vidm.gov.lv. Specific requirements for the ports are specified in regulatory enactments related to handling waste and chemical substances; therefore the present section provides an overview of main regulatory enactments.

“Law on Ports” (in force since 26.07.2004., with amendments issued up to 10.12.2009.) stipulates that the Freeport Authority shall control the protection of the port territory against pollution, ensure elimination of the consequences of pollution in the port and participate in the elimination of the consequences of marine pollution, as well as organize reception of ship-generated waste and polluted water and prepare a management plan for ports in respect of ship generated waste, and in the framework of its competence shall control compliance of the port undertakings’ activities with the valid laws, the Cabinet regulatory enactments and the Port Authority, i.e. the FPRA, Regulations.

The **“Law on Maritime Administration and Marine Safety”** (in force since 03.12.2002., with amendments issued up to 10.11.2009.) stipulates institutional scheme of public maritime administration, ensure implementation of binding international standards and provisions related to marine safety and security and compliance with the aim to prevent marine pollution by ships and make maritime traffic more efficient.

Regulations of the Cabinet of Ministers No.82 **“Standard Requirements for Action Plan Elaboration to Combat Accidental Pollution in Ports, at Berths, Berth Groups and at Oil or Chemical Substance Terminals”** (05.02.2008) (in force since 09.02.2008. with amendments issued up to 09.03.2010.) determine requirements that have to be observed by the Freeport Authority elaborating Action plan with the aim to eliminate accidental pollution in ports, at berths, berth groups and at oil or chemical substance terminals. Introduction and implementation of the said Action plan shall be controlled by State Environment Service.

The law **“On Pollution”** (in force since 01.07.2001., with amendments issued up to 30.12.2009.) is the main regulatory enactment that regulates legal and prohibited activities to reduce industrial pollution. The main goal of the said law – to prevent or reduce pollution impact on human health, property and environment, eliminating negative consequences. The law stipulates requirements related to pollution prevention and control that shall be observed by the operator – a physical or a legal

person, that is carrying out polluting activities or is responsible for technical maintenance of such activities, or has economic impact on the relevant polluting activities. On the territory of FPR the territory leaseholders are regarded as operators.

Waste management field is regulated by the “**Waste Management Law**” (in force since 01.03.2001., with amendments issued up to 06.10.2009.) as well as relevant Cabinet Regulations. Article 5 of the Law stipulates that waste management shall be implemented with no harm for human life and health, and private property. Besides, there shall be no negative impact on environment.

Regulations of the Cabinet of Ministers No.455 “**Procedure of Reception of Ship-generated Waste and Polluted Waters and the Order of Elaboration of Ship-generated Waste Management Plan**” (in force since 02.11.2002., with amendments issued up to 09.06.2009.) determine procedure of reception of ship-generated waste and polluted waters as well as the order of elaboration of ship-generated waste management plan.

Cabinet Regulations Nr.1060 of 15.09.2009. “**Regulations on Hazardous and Polluting Cargo Handling and Control in Ports**” (in force since 19.09.2009) determine requirements that shall be observed in regards of hazardous and polluting cargo handling in ports (loading and unloading operations on board the ship, to railway tanks, trailers, cargo containers or other transport vehicles, cargo relocation in warehouse, on the terminal territory or on board the ship, including delivery, dispatch and storage of such cargo on the port territory with the aim to transship it from one vehicle to another), as well as the mentioned requirements fulfillment control.

The port merchant, that is involved in hazardous and polluting goods handling, is responsible for handling safety and compliance with these requirements, as well as for safety and health protection of the employees that are involved into cargo handling operations. The port merchant nominates the person that is responsible for cargo operations with dangerous and polluting cargo.

In accordance with the Cabinet Regulations No.294 “The Procedure of Applying for and Issuing Permissions to Carry out Polluting Activities of Categories A, B and C” (09.07.200) the enterprises, that use boiler houses of certain capacity, parking lots of certain size, transshipment processes of certain turnover must receive permissions to carry out polluting activities of categories A, B or C category certificate from the SES Lielrigas RED.

Operation of the port and enterprises, working in the port, is regulated by other LR normative enactments as well.

1.3. Binding Regulations of Riga Municipality

On 06.04.2004. the Riga City Council has approved Regulations Nr.95 “**Regulations of the Freeport of Riga Authority**”, that provide detailed description of the FPRA status, competence, functions and management structure (www.rop.lv).

The Article 5 of the Riga City Council Regulations Nr.42 “**Regulations of the Freeport of Riga**” (07.03.2006) stipulates environment protection requirements related to waste management , liquid cargo -oil and chemical products transportation and transshipment, as well as dry bulk cargo transshipment in the port. It is prohibited to discharge waste and sewage waters from shore objects and vessels in the port water area and on the port roads. Washing of a vessel’s hull in the port as well as operation of incinerators is prohibited.

The Regulations stipulate that oil and liquid chemical substances may be shipped to/from the port only by double-bottom or double-hull tankers in compliance with the MARPOL requirements.

Prior to commencing cargo operations, all oil tankers and chemical tankers with polluting and noxious liquid cargo must be buoyed off by booms, except during a period of ice. Under adverse weather conditions with wind force of 10 m/s and more, loading of dust-raising bulk cargoes shall be suspended.

Binding Regulations of Riga City Council Nr.34 “Regulations of Riga Territory Use and Construction within its Limits” of 20.12.2005 (amended by Binding Regulations of Riga City Council Nr. 5 of 18.08.2009 “Amendments to Binding Regulations of Riga City Council Nr.34 of 20.12.2005 “Regulations of Riga Territory Use and Construction within its Limits”) stipulate requirements for use of land plots, structures, constructions and houses on all territory of the Freeport of Riga.

2. GENERAL CHARACTERISTICS OF THE FREEPORT OF RIGA

The Freeport of Riga is located in the southern part of the Gulf of Riga of the Baltic Sea and on the adjacent territories on the left and on the right banks of the River Daugava. The lower reaches of the River Daugava within approximately 14.1 km and the River Daugava tributaries - Buļļupe, Hapaka ditch, Mīlgrāvis and Vecdaugava arm of the river are included into the port water area. Relief of the Freeport land territory is flat with decline towards the bank of the River Daugava. The major part of the present land territory was created during the last 100 years. Due to hydro-technical works' impact hydro-morphological structure of the River Daugava was modified, and sandbanks, semi-peninsulas and small islands of alluvial lands have become regular land territories, that can be used for construction and port operation purposes.

The Freeport of Riga borders with Eksportosta and Andrejsala, where port terminals, using port water area, are located.

2.1. Port water area

The territory of the Freeport water area is 4386 ha, including outer roads in the Gulf of Riga – 3115 ha, inland waters – 1271 ha. Hydro-technical structures include the main fairway, access to the berths, shore reinforcement, berths, ship turning basins , Eastern (Mangaļsalas) and Western (Daugavgrīvas) jetties, flow regulating dams, breakwaters, as well as navigation equipment and tools, that are transferred to possession of the Freeport of Riga Authority. The main fairway includes Access canal to Riga port from reception buoy “B” up to Passenger terminal , Mīlgravis canal and Sarkandaugava fairway.

Vessel turning basins are located near Eksportosta, northern part of Kurpnieksala, Rīnūzhi and before entering Ziemas port. Access fairways have different width and depths, and they are created to ensure vessel traffic up to the berth in compliance with the berth width and length. It is possible to handle general cargo, dry bulk cargo, and liquid bulk cargo, except crude oil, at the Freeport of Riga berths. Maximum vessels' draught at berth (ZO-18, ZO-12) is 12, 50 m, but average draught is – 7, 2 m.

The port water area is regularly dredged. The excavated soil is disposed at various interim spoil ground sites on Krievu Island and Kundziņsala. In 2009 dredging was performed in Pasazhieru Port, Rinuzhi and Kundziņsala regions.

2.2. Inland territories

According to administrative structure the territories, possessed by the Freeport of Riga Authority, are included into Riga city Ziemeļu and Kurzemes regions. Due to the fact that the Freeport of Riga is located along the banks of the River Daugava, i.e. in the city of Riga, port operation and relevant activities have become part and parcel of the city life. That is why in the process of its development planning the Freeport of Riga takes into account location of sensitive territories that were created in the vicinity of the port – specially protected nature territories and populated areas.

Strictly defined Freeport territory use in regards of handled cargo or enterprise activity does not exist – in fact, liquid cargo, dry bulk cargo and general cargo terminals and enterprises are not located in the same area, but are scattered around various port regions. Major part of enterprises has diversified their activities; therefore territories of these enterprises can be classified as mixed type cargo terminals. It should be noted, that changing economic situation resulted in operators' change at the FPR, as well as produced handled cargo type change.

In general the right bank of the River Daugava, though it is more populated than the left one, is more actively used for port enterprises operation compared to the left one. The biggest stevedore companies are located on the right bank of the River Daugava.

Table 1

Marine cargo handled at the port terminals

Handled cargo type	The right bank of the River Daugava	The left bank of the River Daugava
General cargo	Kundziņsala	Podrags
	Sarkandaugava S	Kremeri
	Jaunmīlgrāvis N	Krievu Island Daugavgrīva
	Vecmīlgrāvis SE	-
	Vecmīlgrāvis S	
Dry bulk cargo	Rīnūži	Daugavgrīva
	Eksportosta*	-
	Andrejsala*	
Oil products	Kundziņsala SW	-
	Sarkandaugava	
	Jaunmīlgrāvis	
	Rīnūži	
Liquefied gas	-	Krievu Island
Mixed type cargo	Rīnūži	Kremeri
	Mangaļsala	Krievu Island
		Daugavgrīva

* - administratively the marked territories are located outside the Port borders, but the enterprises operating there use port infrastructure (berths etc.)

Certain, comparatively small territories, are used for recreation purposes, - yacht marinas development has been commenced.

In compliance with Development Programme and in the framework of its implementation the area of garden allotments and undeveloped territories at the Freeport is reduced. For example, in 2009 land preparation work was performed for port activities at Beķermuizha between Beķera ditch and Daugavgrīva highway, where previously were allotments.

There is a lot of territories at the port, that are not used or it is impossible to use them for port functions fulfillment- specially protected nature territories, certain allotment territories, as well as single houses' residential areas in Kundziņsala and Voleri. A part of the territory of the monument of national importance (Nr. 8538) "Daugavgrīva Fortification complex" is located in Mangaļsala and Daugavgrīva. There is a territory

of the historical monument of local importance (Nr. 8539) “Kometforts” in Daugavgriva. Natural reserve „Krēmeri” and part of “Piejūra” Natural Park territory (Milestības Island) are located on the FPR territory. The Freeport of Riga territory borders with nature reserve “Vecdaugava” and nature park “Piejūra”.

2.3. Terminals and their Performance Indicators in 2009

One of the main port performance indicators is navigation intensity. In 2009 3953 vessels called Riga port, that is by 1, 5 % more than in 2008. To ensure navigational safety and environment quality vessels with bigger tonnage should call the FPR, so that the port development is implemented without any additional harm for environment.

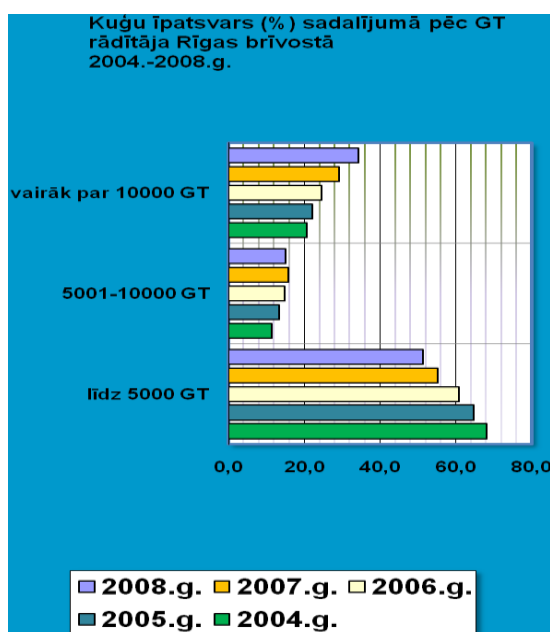
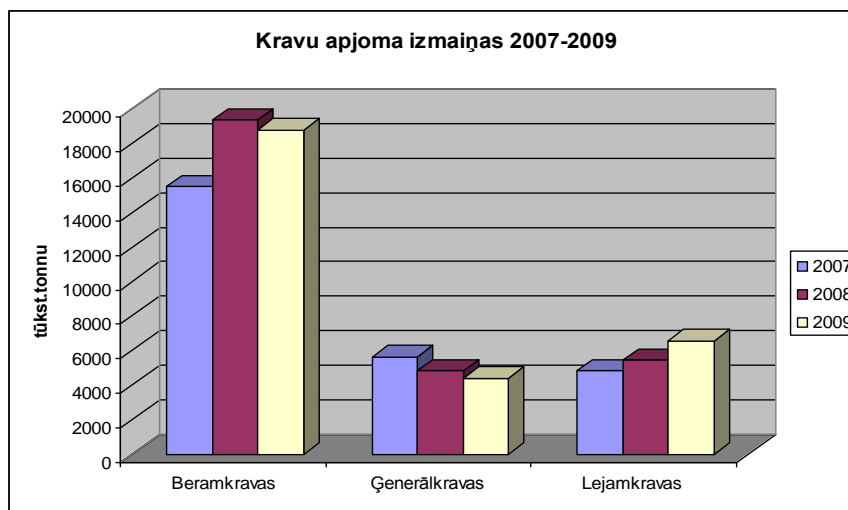


Illustration1. Vessel share (%) in respect of GT at the Freeport of Riga

Sea-bound cargo volume at the Freeport of Riga constantly grows reaching 29, 7 million tons in 2009. In 2009 total volume of handled cargo has grown by 0, 5 % compared to 2008.



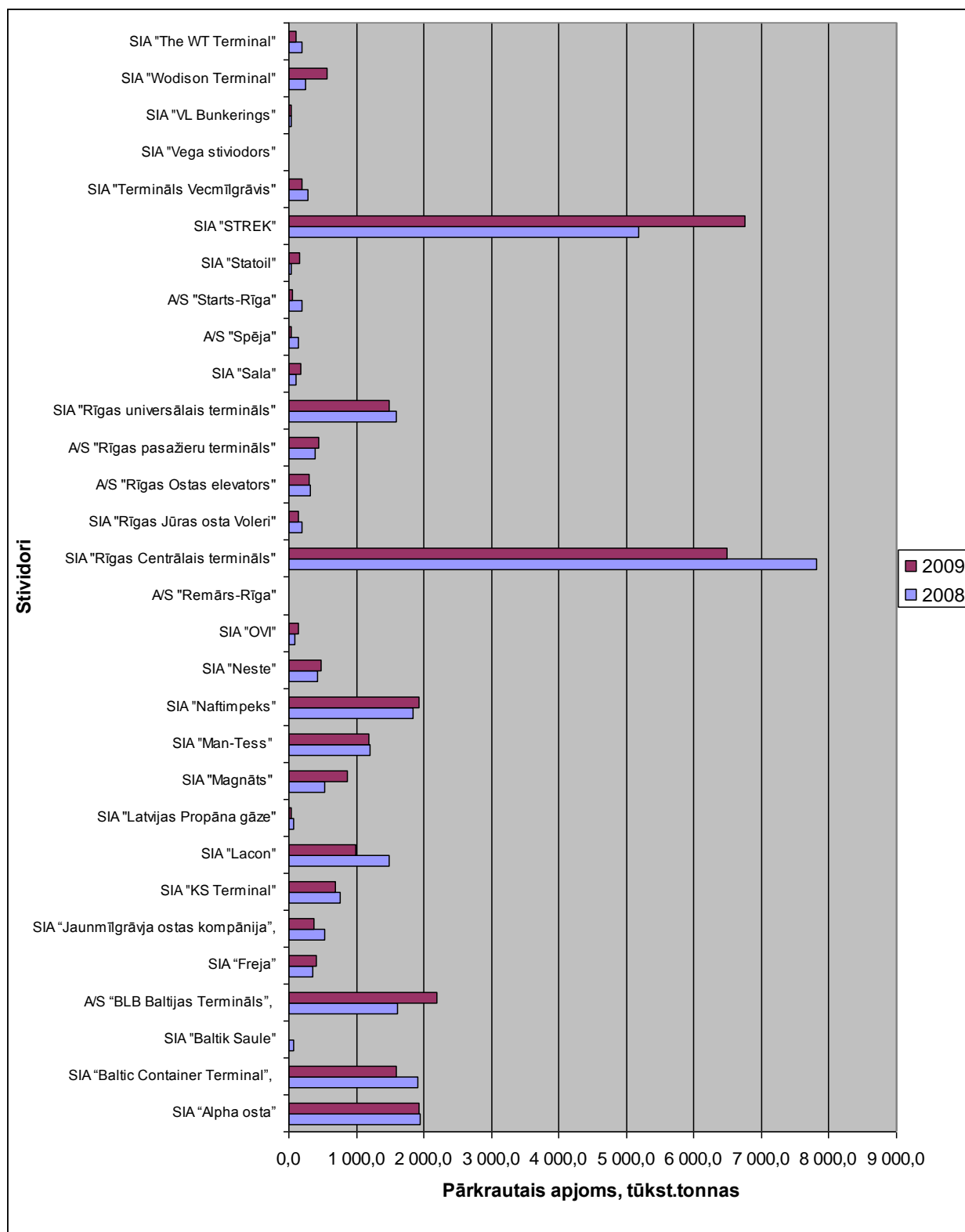
III. 2. Comparison of sea-bound cargo turnover, 2007 – 2009.

29 stevedore companies, handling dry bulk cargo, general cargo and liquid bulk cargo operated at the Freeport of Riga in 2009.

Liquid bulk cargo. Terminals, that are handling and storing oil products and liquefied gas, are located at present on the territory of the Freeport of Riga. In 2009 the volume of liquid bulk cargo reached 6566, 7 thousand tons - 22 % of all cargo types. The biggest volume of cargo is handled by JSC “BLB Baltijas Termināls”, “Naftimpeks” Ltd, and “Latvijas Rietumu termināls” Ltd.

General cargo. In 2009 4405, 4 thousand tons of general cargo were handled. Major part of enterprises is involved in general cargo (containerized cargo, timber and lumber, various metals) handling, and they are located throughout FPR territory. The biggest volume of general cargo was handled by “Baltic Container Terminal”Ltd.

Dry bulk cargo. In 2009 18 752,3 thousand tons of dry bulk cargo were handled. The following dry bulk cargo - coal, woodchip, mineral fertilizers, peat, wheat, sugar etc. - are handled at the Freeport of Riga. The biggest part of dry bulk cargo is handled by “Alpha osta” Ltd, “Rigas Universālais termināls”Ltd, “La Con” Ltd. A certain part of the total dry bulk cargo volume is handled at the FPR berths in Eksportosta and Andrejsala (“Strek”Ltd, “Rigas Centrālais Termināls”Ltd).



III. 3 Comparative volumes of cargo handled by the stevedore companies, 2008- 2009.

3. ENVIRONMENTAL GOVERNANCE AT THE FREEPORT OF RIGA

Due to the fact that the FPRA leases land to enterprises for their economic activities, both the FPRA and relevant enterprises are responsible for environment condition at the Freeport of Riga. According to Land lease agreement provisions every leaseholder of each territory is responsible for compliance with the provisions of regulatory enactments, related to environment quality as well as for obtaining necessary environment permissions for his/her operation. Fulfillment of the said requirements is controlled by the State Environment Service (SES) Marine and Inland Waters Administration (MIWA) and SES Lielrigas Regional Environment Department (RED). The Freeport of Riga Authority in the framework of its competence provides for regular field inspections of all the Freeport territory, controlling compliance with the Land lease agreement provisions as well as fulfillment of requirements related to environment protection.

3.1. Environment management documents elaborated for the Freeport of Riga

In 2000 the FPRA was awarded ISO 9002 quality certificate, and in 2003 - ISO 9001:2000 quality certificate. In 2005 the Freeport of Riga Authority was awarded environment management ISO 14001:2004 certificate. Certification and audit is regularly performed by *Bureau Veritas Quality International*. In 2008 supervision audit was performed by *Bureau Veritas Quality International* and the Freeport of Riga Authority's compliance with ISO 14001:2004 standard requirements was certified.

The FPRA has elaborated and adopted its environment policy in the framework of ISO quality standard with the aim to improve environment quality and attain the following objective: to make the Freeport of Riga one of the most environment – friendly ports in the North-Eastern region of the Baltic Sea. One of the activities to attain the objective is - to provide information to the public and partners with respect to environmental management policy, goals, programmes and environment protection activities that have been performed. In compliance with those activities the Freeport of Riga Environmental Report for 2009 was elaborated.

Elaboration of the **Freeport of Riga Development Programme 2009-2018 (PDP)** was completed in 2009. (Freeport of Riga Development Programme is available at the Freeport of Riga Authority web-page - http://www.rigasbrivosta.lv/lv/media/lejupstreetdes/cat_view/118-development-programme.html).

The following aspects were reviewed in the framework of Freeport of Riga Development Programme 2009-2018:

- Current situation;
- External environment factors – impact of macroeconomic situation on port operation, transit sector development etc. ;

- Cargo turnover forecasts;
- Development scenarios;
- Financial flow forecasts;
- SWOT (Analysis of Strength, Weaknesses, Opportunities, Threats).

On the basis of this analysis the Port Development Strategy, Strategic Action Plan and Development Programme Financial Analysis were elaborated. Sustainable development of the port is ensured by compliance with economic growth, environment protection and social requirements.

In the framework of Port Development Strategy the Freeport of Riga Vision was defined, one of its main aspects being **environment and its sustainable management**.

The environment-friendly port image, provided by the Freeport of Riga Vision, is referred to in strategic objectives of the Development Programme. Nine strategic objectives related to relevant areas of port activities are defined by the Development Programme with the aim to implement Development Strategy. One of the strategic objectives is related to environment protection that is important for environment quality conservation and improvement. (Areas and relevant Strategic objectives are provided in Table 2).

Table 2

Strategic objectives

Area	Strategic Objective
General Management	SO1: To manage the port in line with the needs of its customers
Tariff Policy and Financial Management	SO 2: To ensure a competitive and transparent tariff policy To maximize returns for the port whilst enhancing acceptance in the market place
Development of Port Access Infrastructure	SO 3: To enhance and better integrate the road, rail and waterway transport infrastructure
Development of Port Terminals	SO4: To increase the turnover of cargo and number of passengers at the port and to grow the market share in the region (East Baltic Sea) in terms of total cargo throughput
Navigation Safety	SO5: To enhance safe access to the Port larger size vessels (incl. Panamax), eliminating all possibilities of navigation related accidents
Port Safety and Security	SO6: To assure customers of the port as a secure location, minimize risk of insurance claims and protect the port's assets
Environment Protection	SO7: To reduce the adverse environmental impacts of port activities and new developments
Port as a Socially Responsible Entity	SO8: To build the port's reputation as a socially responsible entity

Area	Strategic Objective
Marketing Strategy	<p>SO9: To increase the volume of port traffic by gaining recognition for winning new business</p> <p>To create and maintain a positive port Image</p>

The Environmental Report is part of the Freeport of Riga Development Programme 2009-2018 (PDP). The prime purpose of preparing an Environmental Report of PDP is to ensure that all environmental and social considerations are taken into account during the preparation of the Development Programme. (Environmental Report is available at the Freeport of Riga Authority web-page http://www.rigasbrivosta.lv/lv/media/lejupstreetdes/cat_view/118-development-programme.html)

Direct and indirect impacts caused by implementation of the Development Programme are assessed in regards of the following environmental and social factors, setting main tasks for each of them:

- Biodiversity and Nature Conservation;
- Population and Public Health;
- Geomorphology, Geology and Soils;
- Land Use;
- Water;
- Air Quality;
- Climatic Factors;
- Cultural Heritage;
- Landscape Diversity and Visual Impacts.

Qualitative analysis of environmental **impact produced by main port infrastructure development projects** was performed in the framework of the Environmental Report, specifying necessary impact mitigation or monitoring activities. Analyzing every Project impact on the above mentioned factors the potential significance of each of these potential impact was assessed as “highly significant”, “significant” and “not significant”.

It was concluded in the Environmental Report that **implementation of the port infrastructure projects** can have significant impact on water quality, population and public health, air quality, biological diversity, in certain cases – on territories of culture monuments, and it can change existing landscape. No significant impact of Development Programme activities on ecological functions and integrity of Natura 2000 territories were identified – in separate cases impact will be not significant and short-term.

It was concluded in the Environmental Report that implementation of Development Programme will not have significant **cross-border impact**.

In regards of **Impact on factors identified in the consultations** it was concluded that impacts due to port operations will not affect the current habitat restoration measures

in the Nature Reserve zone Milestibas Salina and Kremeri Nature Reserve. As a result of port infrastructure project implementation the current land usage for recreational purposes will not be changed. No impacts on historically contaminated sites were identified.

In regards to **cumulative impacts** it was concluded that the total amount of emissions after implementation of key port infrastructure projects will exceed the current level and also in the case if no projects would be implemented. The impact of the increased traffic intensity due to port projects implementation is assessed as highly significant. Cumulative impact on water quality due to changed hydrodynamic conditions on the FPR territory is possible.

In the framework of Environmental Report **Good governance principles in the Freeport of Riga** were elaborated in respect of 11 areas that have to be implemented by every enterprise that wishes to start or to improve its work on the territory of the Freeport with the aim to mitigate potential negative environmental impacts.

The Environmental Management Plan (EMP) that includes environmental mitigation and monitoring activities was elaborated in the framework of the Environmental Report. The purpose of the Environmental Management Plan is to define strategic-level mitigation and environmental monitoring activities in connection with the key impacts from planned port operations that were identified in the process of elaboration of the Environmental Report of Development Programme, as well as in the process of consultations with the stakeholders.

The approach that was used to prepare the mitigation measures incorporated the following:

- ◆ an evaluation of environmental impacts, caused by port operation;
- ◆ ways in which identified risks could be reduced through additional, strategic-level management controls and resources; and
- ◆ ensuring that the content of the EMP works alongside the wider strategic environmental objectives of FRA and SPNTs, so that the content complements, and does not conflict, with any other management plans in place.

In 2009 the FPR has already implemented certain part of the activities that are included into Environmental Management Plan, elaborated in the framework of the Environmental Report. Review of implemented measures in compliance with EMP references and topics is presented in Table 3.

Table 3

Measures implemented by the FPR in 2009 in compliance with the Environmental Management Plan.

Reference	Topic	Completed in 2009
EP1a	Air, climate change	The FPRA together with German partners elaborated and submitted project application related to research on cold ironing system efficiency for cruise vessels. Project application was not approved.
EP1d	General Environment	The FPRA has prepared statement on potential

	Protection	environmental impact assessment in respect of three planned activities and provided available information.
EP2f	Biodiversity and Nature Conservation	In compliance with the ornithologists recommendations biotope reconstruction measures were implemented on Mīlestības Island. In accordance with the elaborated recommendations in 2009 bulrush and reed was cut in the eastern and northern part of the nature reserve territory „Krēmeri” of 2,7 ha. The cut plants were collected and transported outside the territory of the reserve. Ornithologists inspected Zhurku Island and submitted recommendations related for its further management to attract the Laridae.
EP3b	Soil, Water and Groundwater Protection	The FPRA worked together with the SES to prepare historically polluted territories’ treatment project (Latvian – Swiss cooperation program).
EP3c	Landscape/ Water	FPRA carries out regular territories’ inspection with the aim to eliminate potential pollution risk. The FPRA organized waste collection activities on SPNT territories of “Krēmeri” and Mīlestības Island.
EP3c	Land Use	In 2009 “Action Plan to Eliminate Accidental Pollution at the Freeport of Riga “was approved.

3.2. Environmental aspects of port development projects

Due to the fact that the Freeport of Riga is located in the vicinity of the city center, port operation and related activities are part and parcel of the city’s everyday life. That is why in the process of planning its development the FPR takes into account sensitive territories- specially protected natural territories as well as residential areas that have been created close to the Port. Environmental Impact assessment is elaborated for the objects with potential considerable environmental impact as well as for planning and development documents with the aim to identify possible impacts at the early planning or designing stage and plan relevant procedures or technologies for its elimination or reduction.

Starting its activities on the Freeport territory every operator shall perform initial Environmental Impact Assessment procedure to comply with the Law “On Environmental Impact Assessment” of 14.10.1998 and relevant CM Regulations, and provided the State Environment Control Bureau adopts decision to apply Environmental Impact Assessment procedure, the operator shall perform complete assessment procedure. Environmental Impact Assessment ensures right choice of the best available technologies for the planned activity with the aim to eliminate harm for environmental quality and population health. The FPRA provides technical support and advice to operators in respect of receiving permissions, licenses and preparing Environmental Impact Assessment.

In 2009 the EIA process was started or program for the EIA performance on the FPR territory was issued for the following objects on the FPR territory:

- Oil and chemical products handling terminal construction (“Baltic Oil Terminal”Ltd);

- Reconstruction of Access Channel for Ships Entrance into the Port of Riga (The Freeport of Riga Authority);
- Oil products' terminal expansion in Riga ("Statoil Latvija" Ltd);
- Oil products' terminal expansion in Riga ("Naftimpeks" Ltd);
- Oil products' handling terminal construction in Rinuzhi ("Reta Wood Industries" Ltd).

On April 3, 2009 initial public hearing for the Project "Reconstruction of Access Channel for Ships Entrance into the Port of Riga" took place.

In 2009 the FPRA completed Environmental Impact Assessment procedure of the Project "Development of Infrastructure of Krievu Sala for the Transfer of Port Activities from the City Centre" and the related activities. The SEB Conclusion in respect of Environmental Impact Assessment was issued on March 24, 2009. On 16.06.2009 Riga City Council has adopted a resolution Nr.5577 "On approval of Environmental Impact Assessment in regards of the planned activity - Transfer of Port Activities from the City Centre to Krievu Island (Riga, Zila street 25, Cadaster Nr. 0100970143) and Riga, Zila street n/n (Cadaster Nr. 01000970145).

3.3. Environmental risks and risk mitigation measures

3.3.1. Industrial accident risk objects

In accordance with cl.14 of the Cabinet Regulations Nr.532 "Regulations on Procedure of Industrial Accident Risk Assessment and Risk Reduction Activities" (19.07.2005.) Industrial Accident Prevention Program (IARP) is elaborated for 5 risk objects, located on the FPR enterprises' territory.

Table 4

Enterprises on the FPR territory that have IARP

Nr	Enterprise	Address	Hazardous substances
1	"AGA" Ltd, Bolderaja gas filling station	Flotes 9, Riga	Oxygen, acetylene, propane and other hazardous substances
2	"MAN-TESS" Ltd	Tvaika 7a, Riga	Oil products
3	"VL Bunkering" Ltd	Tvaika 68, Riga	Oil products
4	"WOODISON TERMINAL" Ltd	Tvaika 39, Riga	Oil products
5	"VEXOIL Bunkering" Ltd	Atlantijas 27, Riga	Oil products

There are 7 risk objects, located on the FPR enterprises' territory, and for those objects in accordance with cl.15 of the Cabinet Regulations Nr.532 "Regulations on Procedure of Industrial Accident Risk Assessment and Risk Reduction Activities" (19.07.2005.) Safety report and Civil Defense Plan were elaborated.

Table 5

Enterprises on the FPR territory, for which Safety Report and Civil Defense plan were elaborated

Nr.	Enterprise	Address	Hazardous substances
1	“Alpha Osta”Ltd	Atlantijas 35, Riga	Mineral fertilizers with ammonium nitrate
2	JSC “B.L.B. Baltijas Termināls”	Ezera 22, Riga	Oil products
3	“Latvija Statoil” Ltd	Laivinieku 7, Riga	Oil products
4	“LATVIJAS PROPĀNA GĀZE” Ltd	Zila 20, Riga	Propane – butane
5	“MAN-TESS” Ltd	Tvaika 7k-1, Riga	Oil products
6	“NAFTIMPEKS” Ltd	Laivinieku 11, Riga	Oil products
7	“Neste Latvija” Ltd	Laivinieku 5, Riga	Oil products

In the process of IARP and SP (and Civil Defense Plan) modeling of possible industrial accidents scenarios was performed, and according to results the safety zones for each object were specified in the territory planning.

3.3.2. Control of Activities involving Hazardous Substances

Cabinet Regulations Nr. 1060 “**Regulations on Hazardous and Polluting Cargo Handling and Control in Ports**”(15.09.2009.) determine requirements that shall be observed in regards of hazardous and polluting cargo handling in ports (loading and unloading operations on board the ship, to railway tanks, trailers, cargo containers or other transport vehicles, cargo relocation in warehouse, on the terminal territory or on board the ship, including delivery, dispatch and storage of such cargo on the port territory with the aim to transship it from one vehicle to another), as well as the mentioned requirements fulfillment control.

The hazardous cargoes, handled at the Freeport of Riga, are all liquid bulk cargo and chemical cargo, as well as mineral fertilizers that are dry bulk cargo. In 2009 6 566, 7 thousand tons of liquid bulk cargo and ~1 935 thousand tons of fertilizers were handled. The main hazardous characteristics of handled and stored hazardous substances are the following: inflammable, easily combustible, combustible, hazardous for environment, harmful for health at certain vapor concentration.

Port enterprises, that produce chemical substances, for example, “Vega Stivisors”Ltd (car care products), “Latvija Statoil”Ltd (fuel with bio-additives), “VL bunkerings”Ltd (in the process of bio-diesel production methanol and natrium hydroxide are used), also carry out activities involving hazardous substances.

Hazardous equipment is registered in the Register by the certified inspection institutions JSC “*Inspecta*”, or “TÜV Nord Baltic”Ltd or “LRTDEA”Ltd inspectorate. Latvian Maritime Administration carries out general supervision in respect of dangerous and polluting cargo turnover and control at the ports, as well as organizes inspections of vessels in compliance with requirements, specified in VIII part of Cabinet Regulations Nr. 1060 of 15.09.2009.

The Freeport of Riga Authority is participating in various projects with the aim to reduce environmental impact. The purpose of “Safe and Reliable Transport System for Dangerous Goods Transshipment in the Baltic Sea Region” (DaGoB) project is to improve cooperation between public and private sector in regards of dangerous goods (DG) transshipment in the Baltic Sea Region, uniting partners at various control levels, providing updated information on cargo flows, supply chain efficiency and risks related to dangerous cargo transportation. DaGoB strengthens the competence of dangerous goods professionals in the Baltic Sea Region, and improves the efficiency and safety of transport chains involving dangerous goods.

The port merchant that is involved in hazardous and polluting goods handling is responsible for turnover safety and compliance with these requirements, as well as for safety and health protection of the employees that are involved into cargo handling operations. The port merchant appoints a person, that is responsible for operations with hazardous and polluting cargo.

Elimination of possible hazardous substance spill

Potential oil, oil product and chemical substance spill sources at liquid cargo terminals in regards of overland are tanks, railway and truck tanks unloading facilities (trestles, pump stations), pipelines and their complexes. Hazardous substances spill of other type can produce surface water pollution.

Any cargo transshipment berth or terminal shall not commence its operation unless the SES MIWA has approved a plan for oil and chemical spill elimination. In accordance with the Freeport of Riga Regulations, the cargo operations at oil product and noxious liquid cargo transshipment berths shall be performed in accordance with the regulations for operating such terminals. Prior to commencing cargo operations, all oil tankers and chemical tankers with polluting and noxious liquid cargo must be buoyed off by booms. Oil product and noxious liquid cargo transshipment berth shall have a supply of absorbing substances enabling absorption of at least half of theoretically possible polluted spill and shall be equipped with a skimmer with a total capacity of at least 20 cub.m/h. A berth or terminal operator shall be fully responsible for the implementation of said requirements.

3.3.3. Action Plan to Combat Accidental Pollution at the Freeport of Riga

On the basis of Regulations of the Cabinet of Ministers No.82 “Standard Requirements for Action Plan Elaboration to Combat Accidental Pollution in Ports, at Berths, Berth Groups and at Oil or Chemical Substance Terminals” (05.02.2008) in the end of 2008 the Action Plan to Combat Accidental Pollution in the Freeport of Riga was elaborated and on January 15, 2009 the said plan was approved.

The Action plan stipulates procedure of accident notification, pollution assessment, situation control, operational management, as well as due order of accident elimination activities provided accidental pollution occurs. The plan is applicable for any accident on the territory of the Freeport of Riga, that has generated or might generate pollution.

The following institutions are responsible for plan implementation:

- ◆ **Activities Coordination Center (ACC)** – the Chief of ACC shall be in the lead of accident elimination and is directly responsible for appropriate implementation of any activity, started in compliance with the mentioned plan, except for fire extinction, when management is transferred to the Chief (the highest authority) of Riga Authority of State Fire-extinction and Rescue Service, that has arrived at the accident place. The Chief of ACC is responsible for regular reviewing and updating of the plan.
- ◆ **Vessel Traffic Center**– shall ensure and coordinate notification related to the accident, information circulation between involved institutions and enterprises, as well as ensure navigation safety (prohibition) in case of emergency on the port territory.
- ◆ **“Eko osta”Ltd** – shall perform activities aimed at pollution recovery, deliver polluted water, recovered oil products and waste absorbents to treatment facilities, coordinate participation of the FPRA employees and employment of the FPRA technical equipment for accident consequences elimination as well as participation of other institutions in the process of accident consequences elimination.
- ◆ **SES Marine and Inland Waters Administration** – shall approve activities aimed at accident consequences elimination , that were not previously included into the plan (including exclusive use of chemical substance facilitating dissolving of oil products), as well as shall participate in choosing the most efficient pollution recovery technology and methods. Shall carry out investigation to define the guilty party in case of pollution of unknown origin.

4. ENVIRONMENT QUALITY ON THE TERRITORY OF THE FREEPORT OF RIGA IN 2009

4.1. Monitoring systems

With the aim to assess current environment quality and its relevant changes during specific time period, air, ground water, sediment (random check), sewage water treatment quality, as well as current SPNT condition is being monitored on the FPR territory. In the beginning of 2010 on the FPR territory, at 23, Flotes street, near Daugavgrīva lighthouse automatic meteorological station was mounted, transferring meteorological data once per three hours

Air quality monitoring stations are located on the right bank of the river. 4 DOAS type (differential optical absorption spectroscopy) measurement stations OPSIS have been mounted in the Freeport and in the adjacent territories. Maintenance of OPSIS equipment is carried out by Latvian Center of Environment, Geology and Meteorology, that receives and analyzes all measurement data in non-stop regime and submits them in the form of report to the Freeport of Riga Authority. The results of measurements are available on the web-page of the FPRA www.rigasbrivosta.lv.

Ground and ground water quality study and monitoring are initiated by the Freeport of Riga Authority, coordinating work program with State Environment Service. With the aim to mitigate Daugava water area pollution risk the Freeport of Riga Authority is implementing supervision activities: regular visual territory inspection, ground water quality monitoring. Those activities involve considerable funds, invested into research of environment quality on its territory, still they provide great input for clarification of information on polluted and potentially polluted places as well as create solid basis for launching activities aimed at environment rehabilitation.

Ground and ground water quality research on the FPR territory on the left bank of the River Daugava has been carried out since 2001. In 2009 on the left bank of the River Daugava data was supplied by 143 surveillance wells, and on the right bank of the River Daugava – by 155 surveillance wells.

Quality of water basins (surface water) is controlled by Latvian Center of Environment, Geology and Meteorology in the framework of National Environment Monitoring program. Water ecological quality can be divided into 5 categories – high, good, average, bad and very bad. Water quality is assessed in regards of the following indicators – minimal oxygen content, biological oxygen demand (5 days, BOD₅), nitrogen compound content, common phosphorus and common saprobity index

The permissions to carry out polluting activities of categories B, issued to the enterprises that have installed local waste water treatment facilities and discharge waste water into surface water after relevant treatment, contain individual recommendations in regards of permitted for discharge pollutants, permissible concentration of every polluting substance, and/or volume of permissible emission per year. The permissions also define quality monitoring parameters of discharged sewage water and analysis frequency. The fulfillment of those requirements is controlled by the SES Lielrīgas RED. That means that enterprises are responsible for

the quality of the sewage water discharged into surface water and carry out self-control activities.

Waste water treatment quality monitoring

Provided industrial waste water is disposed into Riga city central sewage system an agreement concluded with "Rīgas Ūdens" Ltd on waste water reception shall specify polluting substances and their concentrations that waste water can contain and frequency of waste water quality testing. "Rīgas Ūdens" Ltd organizes monitoring by random check.

Provided industrial waste water after treatment is discharged into municipal storm water sewage system, the enterprise shall conclude an agreement with Transportation Department of the Riga City Council that is responsible for managing storm water sewage network. Still Transportation Department of the Riga City Council has not elaborated regulations related to conclusion of such agreements and requirements of waste water reception. That situation is characteristic not only for the FPR, but for all Riga territory. It should be noted, that the collected storm waste water is not treated, but is discharged into environment (surface waters, usually into the River Daugava).

Provided industrial waste water after treatment is discharged into environment (surface water), SES Lielrigas RED has defined permissible polluting substances, their concentrations, amounts per year, necessity of monitoring, parameters, necessity to pay tax on natural resources for waste water discharge and tax payment frequency in permissions to carry out polluting activities of categories B, that are issued to the relevant enterprises.

Bottom sediment quality is monitored at locations where dredging is planned, in the framework of EIA process, as well as by random check on certain study territories.

Monitoring of the FPR SPNT current status

In order to assess condition of nesting birds' population on the territories where specific measures aimed at birds' life improvement where implemented, the FPRA for several years has organized SPNT monitoring. In compliance with the agreement, concluded with the FPRA, Latvian University Biology Institute monitors the territory, and in 2009 Zhurku Island, Nature Reserve "Krēmeri" and Mīlestības Island were inspected.

4.2. Air Quality

The main sources of emissions into air on the territory of the FPR are processes related to dry bulk and liquid cargo handling, emissions, produced by ship engines, local boiler houses of the enterprises and emissions produced by transport vehicles.

Sulphur dioxide - the main source of sulphur dioxide pollution are boiler houses, handling oil products and motor vehicles, that use diesel oil as fuel.

Nitrogen dioxide – the main source of pollution provided by nitrogen dioxide is transport vehicles traffic (provide approximately 90% of nitrogen dioxide concentrations) as well as burning of organic fuel in heating boilers.

Particulate matter PM₁₀ (up to 10 µm) are emitted mostly during the process of handling dry bulk cargo, their sources might be motor transport and incinerators (excluding cases when fuel is gas).

Particulate matter PM_{2,5} (up to 2, 5 µm) are emitted mostly during the process of handling dry bulk cargo, their sources might be motor transport and incinerators (including cases when fuel is gas).

Carbon dioxide is also emitted during burning processes, including processes inside internal combustion engines of motor vehicles.

Benzol (benzene) – the main source of benzol pollution is motor vehicles that use petrol as fuel, as well as process of handling oil products. According to long-term air quality monitoring in Sarkandaugava, carried out by Riga City Council, the biggest source of benzol emissions is urban motor traffic.

Toluol, similar to benzol, is one of the oil products' components and is emitted into environment by motor car emissions, as well as in the result of fuel volatilization during the process of oil products handling and storage. Level of toluol concentrations depends on oil products handling volume per month.

Ozone is created in the process of photochemical reaction in the air, involving nitrogen dioxide, hydrocarbon and carbon monoxide, that are created due to operation of internal combustion engines of motor vehicles and oil products handling, and depends on sun radiation intensity.

Vanadium compounds and hydrogen sulphide are generated by heavy black oil burning processes. Small quantities of hydrogen sulphide are emitted in the process of diesel oil and heavy black oil handling and storage.

Volatile organic substances are components of various paints, varnishes and solvents that are their major emission sources.

Other substances are not emitted by the enterprises operating in the FPR territory, or are emitted in small amounts.

Odours and dust polluted by PM₁₀ are the main reasons of resident's complaints – it was stated in the process of various resident polls, implemented in the framework of "Vides Konsultāciju Birojs" projects as well as processing data in regards of complaints, submitted to Riga City Council Environment Department, from 2004 till 2009.

Comparing measurement results of 2009 with polluting substances' emissions limit values and target values, and according to monitoring data, processed by Latvian Agency of Environment, Geology and Meteorology it can be concluded that:

- ✓ as for **ozone**, four limit value exceedances per year (human health protection 8 hour average value) were detected. In April there was one exceedance at BLB station and one at Man-Tess station, in May and June one limit value exceedance per month was detected at BLB station. In compliance with regulatory enactments' provisions, exceedance of limit value is permissible 25 days during three years period. Due to the fact that in 2007 six (3 in March, 2 in April, 1 in August) exceedances of limit value were detected, and there were no limit value exceedances in 2008, it can be concluded that air quality is in compliance with regulatory norms;
- exceedance of **particulate matter PM₁₀** limit value is permissible 35 times per year (see Cabinet Regulations No. 588 (21.10.2003) and the same limit value is incorporated into Cabinet Regulations No. 1290 of 03.11.2009). According to monitoring results, the daily PM₁₀ limit value was exceeded 20 times in 2009, therefore it can be stated that air quality is in compliance with regulatory provisions;
- stipulated weekly **toluol** target value has never been reached in 2009;
- in 2009 defined **benzol** yearly norm, in compliance with limit, was 6 µg/m³. The highest benzol yearly concentration among all monitoring stations was detected at Man-Tess station - 12, 9 µg/m³, still, though the value is comparatively high, the air quality limit value is not exceeded, due to the fact that the station is installed in the working area and the CM Regulations Nr. 1290 "Regulations on Air Quality" shall not apply working environment. Measurements carried out at Mīlgrāvis station are insufficient to define average yearly concentration due to technical reasons, while benzol average yearly concentration at BLB station was 4,9 µg/m³ and at Tvaika street station - 4,6 µg/m³. That is why it is possible to conclude that in general benzol average yearly concentration is not exceeded and air quality standard is met;
- 1 hour **nitrogen dioxide** norm in 2009 has never been reached;
- In 2009 Latvian Agency of Environment, Geology and Meteorology has never detected any sulphur dioxide norm exceedance case.

It should be noted that measurement stations do not detect pollution, that is caused by one particular enterprise, they detect total amount of polluting substances, provided by neighboring stationary and mobile pollution sources (background), that might be located outside the port's territory. Therefore it is possible to control general air quality, though pollution source might not be detected quite precisely.

For comparison - In the process of air pollution monitoring, carried out in 2009 by the Riga City Council Environment Department, exceedance of nitrogen dioxide annual limit value was detected only at Brīvības street. Annual limit value of PM₁₀ content in dust was not exceeded, but the daily limit value (50 µg/m³, 35 exceedances are permissible) was exceeded 46 times at Kr. Valdemāra street and 33 times at Brīvības street.

Comparing 2009 measurement data to the previous year results, it can be concluded that:

- ◆ Air quality indicators related to ozone, toluol, nitrogen dioxide and sulphur dioxide concentrations have not changed – these still do not exceed air quality limit and target values;
- ◆ In 2009 defined benzol yearly limit value (benzol yearly average concentration - $6 \mu\text{g}/\text{m}^3$) was not exceeded, situation in regards of benzol pollution has improved ;
- ◆ In 2009 Air quality norm was exceeded 20 times while only 35 exceedances per year are permissible, at the same time in 2008 year quality norm was exceeded 15 times, therefore air quality indicators in regards of particulate matter (PM_{10}) have worsened , still similar to 2008 air quality in regards of particulate matter (PM_{10}) is in compliance with the norm.

Benzol air quality limit value is reduced every year (2008 limit value – $7 \mu\text{g}/\text{m}^3$, 2009 limit value – $6 \mu\text{g}/\text{m}^3$, and on January 1, 2010 limit value has reached constant amount – $5 \mu\text{g}/\text{m}^3$).

Due to reduction of PM_{10} year limit value by 2010 (2008 PM_{10} year limit value – $24 \mu\text{g}/\text{m}^3$, 2009 PM_{10} year limit value – $22 \mu\text{g}/\text{m}^3$, and on January 1, 2010 it has reached constant value – $20 \mu\text{g}/\text{m}^3$), it is assumed that that there will be problems related to compliance with those limit values in future as well. Still in regards of PM_{10} limit values mandatory requirement, stating the necessity to introduce relevant norm amendments (limit value will be increased) into regulatory enactments by June of 2010, was stipulated in the Republic of Latvia, and that might change the situation.

All port enterprises activities are classified as polluting activities of category B or C, and it is not mandatory for them to employ the best available technologies, nevertheless they are aware of the fact that the best available technologies can ensure environment impact reduction. New generation liquid bulk cargo terminals, that have volunteered to introduce new technologies, have achieved excellent results – there are no residents' complaints related to their activities, no considerable environmental impact is registered in the process of their operation. In the beginning of 2010 Lielrigas RED informed that it had received Riga city residents complaints related to the Freeport enterprises, but Lielrigas RED was unable to specify and determine the enterprise, whose operation caused complaints; therefore it is not likely that complaint was due to operation of new generation oil product terminals.

4.3. Quality of Soil, Ground and Underground Waters

In the process of long-term monitoring of the Freeport of Riga territory it was concluded, that quality of the said territory's ground and underground waters, due to its historical deployment for industrial purposes, is affected to a certain degree. The current and potential pollution sources are fuel storage and refilling places, motor vehicles washing and repair places, metal scrap cutting and stationing sites, unauthorized waste disposal sites as well as bad technical condition of sewage network. The most remarkable historical pollution was detected on the territories of

the following enterprises - "Freja" Ltd, "OVI Rīga" Ltd, "Eko osta" Ltd, "OVI" Ltd, "VL Bunkering" Ltd, JSC "BLB Baltijas Termināls" and "Vudisona Terminals" Ltd. The major part of researched territories ground is not remarkably polluted, local natural pollution with some substance (organic substance, surface active compounds, macro components or nitrogen compounds).

LEGMA has created and administers data base, containing information on polluted and potentially polluted locations. Polluted territories are the territories that have enough data to make conclusions on pollution type, intensity and, in certain cases, on pollution area. Potentially polluted territories are the territories, where there are certain suspicions that there might be pollution, still there is certain lack of concrete data, and after detailed research rather often it turns out that the location is not polluted at all. List of polluted and potentially polluted territories of the Freeport of Riga is presented in Appendix 1.

The research results confirmed assumption that all the territories, defined as polluted in the LEGMA data base, are really polluted, excluding territory of "Jūras vejs" Ltd and "La Con" Ltd, where according to the research quality of ground and ground water is not affected or is affected to a small degree. Research has not been carried out on certain territories (JSC "Starts-Rīga", "Magnāts" Ltd, "Vega stividors" Ltd and "Baltic Container Terminal" Ltd).

As for potentially polluted territories, the research has confirmed that territories of "Vexoil Bunkering" Ltd, of "Latvijas Rietumu Termināls" Ltd and of the Freeport of Riga Customs control point, JSC "BMGS" and "Port Magnat" Ltd are polluted, but regular ground water quality monitoring of "Neste Latvija" Ltd and "Latvija Statoil" Ltd territories, that has been carried out till now, has not confirmed territory pollution assumptions.

Still the research of the territory of "Gaujas Granulas" Ltd, producing woodchip pellet, proves that ground and ground water quality is affected to a small degree and can be characterized as good. Nevertheless, it is recommended to perform regular monitoring of all wells, located on the territory, with the aim to plan further environment quality improvement activities on the basis of monitoring results when needed.

Ground and ground water pollution with oil products was detected in 2009 on separate port territories (in Voleri, Kremeri, Mangalsala, Krievu Island, Daugavgrīva). During field inspections such characteristic oil product features as unpleasant smell, multi-colored film were detected visually. This pollution is historical and its main factor is inappropriate management activities of the former territory leaseholders. The pollution has penetrated into deep layers in places, where there was no hard covering or the covering was damaged. Oil products containing embankment, used to elevate the territory level, is used at certain territories. In some cases oily waste water spillage into environment has occurred due to damaged sewer (Sarkandaugava old river area is covered with waste of miscellaneous origin).

In 2009 situation with territories, polluted by oil products, has not substantially changed.

On the largest part of port territories (in Mangaļsala, Rīnūzhi, Vecmīlgrāvis, Voleri, Krievu Island) heavy metal pollution is of local nature, that is confirmed by the laboratory test results. More intensive heavy metal pollution is detected at locations, where metal scrap cutting or metal processing activities were carried out, as well as where metal storage took place on sites without hard covering and storm water sewage systems. Heavy metal proportion in the ground water has considerably decreased in Mangaļsala, Rīnūzhi, Vecmīlgrāvis, compared to the previous year indices, that might be attributed to self-purification process and this positive outcome might be caused by improvement works on the particular territories.

Pollution of ground water with organic substances, surface active compounds, macro components and nitrogen compounds was detected on major part of the leaseholder's territories – especially in Voleri, Krievu Island, Daugavgrīva, Rīnūzhi and Mangaļsala. Still the main reason of pollution is bad technical state of sewage network, various waste, that causes penetration of polluting substances into the ground with rain water. On the basis of laboratory test results for the previous year it can be concluded that situation on the port territory has not changed.

The increased concentration of sulphate ions was detected locally, on three territories - Kremeri, Krievu Island and Daugavgrīva. This growth of sulphate ions concentration might be attributed to the fact that some industrial waste (worn-out or broken-down accumulators), mud, that contain sulphate ions, was stored on those territories.

In comparison with data of 2008 there is certain improvement in regards of sulphate ions - in 2008 increased concentration of sulphate ions was detected on six territories.

Being aware of environment quality issues, before the detailed research the FPRA is planning how to liquidate or decrease pollution, that is mainly historical. It should be noted that pollution of those territories is related neither to the activities of the Freeport of Riga Authority, nor to those of the current land leaseholders. Still, taking into account the urgent need to reduce or eliminate pollution of the Freeport of Riga water area and territory, both the Freeport of Riga Authority and relevant enterprises are involved in territory treatment activities

4.4. Polluted Territories' Treatment

In 2009 the FPRA continued treatment work, that was started in 1998 on the territories with historical pollution. These territories formerly belonged to the Soviet Army and industrial enterprises: "OVI Rīga" Ltd, "Eko osta" Ltd, "OVI" Ltd, "VL Bunkering" Ltd and "Woodison Terminal" Ltd.

To motivate enterprises to carry out sanitation work with the aim to eliminate pollution, provided by former owners, the Freeport of Riga Board has approved in 1999 a resolution on support mechanism introduction for environment rehabilitation activities. It was decided to compensate funds, invested by the land leaseholders into land rehabilitation, in the amount of up 50% of the rent payment for the relevant land plot.

The territories of “OVI Rīga” Ltd, “Woodison Terminal” Ltd, “Eko osta” Ltd, “VL Bunkering” Ltd and “OVI” Ltd are the most polluted territories of Jaunmilgravis region. The pollution has started to accumulate on these territories some 100 years ago. Present land leaseholders have inherited it from former property managers, that were mostly Soviet Army military bases or enterprises

The territory, that is rented by the “**Eko osta**”Ltd (39, Tvaika street) was historically used for oil products storage and transshipment. At the time of former USSR, there was fuel warehouse of navy base on this territory. In the result of its activities the ground and ground water of territory is polluted. According to “*Baltec Associates*” Ltd oil product floating layer thickness on the “Eko osta”Ltd territory varies from 0, 37 m to 0,957 m. Territory treatment was carried out from 2004 till 2008.

Accumulation of pollution, provided by oil products, on the territory, that is rented by “**OVI Rīga**”Ltd (35, Tvaika street) has been going on since 1872, when there was petroleum plant. In the beginning of the plant activities, the waste, generated by the enterprise, was stored on the territory of the plant. Ground treatment and research was started in 1998. In the process of those activities the spread of the floating level on the area of 24 400 m² was detected and approximate pure oil product volume of 1480 m³ was defined. It was stated that oil products flow directly into Sarkandaugava river branch.

In 2009 on the territory, that is rented by **JSC “OVI Riga”**, 384, 57 m³ of oily waste water, including 15, 87 m³ of oily emulsion, were pumped out (in 2008 - 226, 76 m³ and 12, 08 m³). In the result of pumping, considerable changes of floating layer thickness in monitoring bore holes were detected. Still renovation of floating layer thickness is stated after every switching off of the pumping system that proves necessity of sustainable operation of pumping system in future.

The territory, that is rented by “**Woodison Terminal**” Ltd (39, Tvaika street) for more than 100 years was used for oil products storage and handling for both military and civil purposes. Due to long-term operations soil, ground and ground water are thoroughly polluted. Pollution of ground waters with oil products resulted in floating layer thickness that exceeds 1 m in particular bore holes. In the result of 2006 activities the floating layer of 1, 8, m was detected in the area of “Eko osta” Ltd and “Vudisona Termināls”Ltd (at present - “Woodison Terminal”Ltd) berths. High percentage of decomposed oil products indicates historical pollution. In 2009 180 m³ of polluted oily water, including 1, 82 m³ of oily emulsion (in 2008 545, 14 m³ and 12, 75 m³ respectively), were collected and transferred to treatment facilities.

On the territory, that is rented by “**OVI**” Ltd (35, Tvaika Street) there is immense ground and ground water pollution due to long-term storage and handling of oil products. Oil products together with ground water flow migrate to the territory that is rented by JSC “OVI” from “Woodison Terminal” Ltd as well. The calculated total area of the oil product floating layer is 20 000 m², the floating layer contains ~280 m³ of oil products, 180 m³ of them being floating or mobile fractions that move to Sarkandaugava. In 2009 in the result of the “OVI” Ltd territory treatment 632 m³ of oily water and 5, 03 m³ of oily emulsion was pumped and transferred to the treatment plant (in 2008 12, 75 m³ of oil product emulsion).

On the territory of the “**VL Bunkerings**” Ltd (68, Tvaika street) ground and ground water research was carried out already in 1990 -1992. The research revealed considerable contamination of the territory that penetrated into ground water flow into Milgravis and polluted surface water. On the central part of the territory, rented by “VL Bunkering”Ltd, free fractions of oil products were detected. At this section floating layer thickness is from 0, 41 m to 0, 63 m. In 2009 100 m³ of oily waste water, including 1, 02 m³ (In 2008 438, 97 m³ and 0, 76 m³ m respectively) of oily emulsion, were pumped out and transferred to the treatment plant.

In 2009 treatment of historically polluted territory , rented by JSC “**BLB Baltijas Termināls**”, was resumed. This oil product enterprise is located on the territory of former superphosphate plant and waste disposal. In 2002- 2003 test activities were performed to ensure effectiveness of the selected method and since 2004 annual territory treatment has been implemented on the territory, rented by JSC “BLB Baltijas Termināls”. In 2009 treatment activities were started on the territory, where the highest slag level thickness and high heavy metal concentration was detected in groundwater. Calcinated natron solution impact on sulphuric acid slags was used for polluted groundwater treatment. In the result of chemical reaction copper, lead and zinc are transformed into soluble carbonate compounds. In 2009 6 tons of natron powder were used for treatment (in 2004 - 2008 41 tons of natron powder were used in total).

In 2009 implementation of the **Project “Assessment of current treatment concepts and investment plan in compliance with institutional requirements for Sarkandaugava historically polluted objects on the territory of Freeport of Riga”**. Project implementation was financed by Swiss Confederation in the framework of Swiss –Latvian Cooperation program “Swiss Contribution”.

Treatment of the territory, that is rented by “**Freja**”Ltd, (14 Flotes street), was started in 1999. Research results revealed increased concentration of heavy metals in the ground that might be related to the fact that the said territory was earlier used for ship repair and later on for ship wreck cutting. Polluted territory treatment has been carried out. Monitoring was started in 2008.

4.5. Surface water quality

Surface waters (the River Daugava and its tributaries). Their quality (including both ecological and chemical indicators) on the territory of the FPR can be influenced by the vessel’s stay at the port as well as by the discharge of sewage water (rainwater, domestic waste water, industrial waste water) from the shore enterprises and from Riga city storm sewer system.

In 2009 the River Daugava water quality was assessed at the section near Andrejosta and in Daugavgrīva. At both monitoring locations the defined water quality was assessed as good (quality index according to the worst defined indicator) in 2009. Such Daugava water quality in the port water area has been observed for several years already. It should be noted that the Daugava water quality monitoring indicates general water quality of the river, not just the FPR influence, due to the fact that the Riga city storm water sewage, as it was mentioned before, is discharged into the river and major pollution arrives together with flow from the upper course of the river.

Still, taking into account the total volume of pollutants, the River Daugava water quality on the FPR territory is being assessed as good.

To ensure safe navigation conditions, the dredging of Daugava fairway must be carried out regularly. Both dredging and dredged soil disposal have impact on environment. Dredging has negative effect on water biological resource including reduction of dissolved oxygen concentration and aquatic organism's extinction due to operation of dredger's bucket and due to muddy flows, resulting from sucking water into dredger's suction pipe.

With the aim to reduce environmental impact, the FPRA applies various organizational and engineering-technical activities, that are being implemented in two main directions:

- ◆ Limitation of dredging work on the basis of hydro-biological and hydro-meteorological conditions;
- ◆ Improving total technological process of dredging activities.

Still, the above mentioned impact on biological resources is unavoidable, therefore before dredging is started, fisheries' assessment is carried out at that particular location, as well as regulations, related to time of dredging with the aim to minimize possible damage, are received. Fishery department computes losses caused to environment, and the FPRA shall compensate it in terms of money. The FPRA performs annual release of fish juveniles into the River Daugava in compliance with calculations, performed in the framework of relevant Fish Resources Agency Expert Conclusion.

Bottom Sediment Quality. Before the start of dredging activities, ground samples are taken and tested by laboratory to define sediment quality and choose the most efficient option for their disposal or utilization. Therefore, environment supervising institutions shall be notified about dredging site, volume, time, technologies to be employed and the relevant permissions shall be received. All regulations and recommendations, issued by environment protection institutions, shall be observed to minimize environmental impact. None of the sediment quality tests has resulted in quality limit value exceedance, that is why the present sediment disposal is approved by the State Environment Service.

In 2009 the total volume of the dredged and stored soil has reached 987 000 m³. From 2001-2009 the total volume of soil, dredged to ensure main fairway depths, has reached 6 6925 239 m³.

Since 2005-2006 the dredged soil has been disposed at the interim spoil dumping site at Kundziņsala and Krievu Island. Since 2005 1 716 955 m³ of dredged soil have been disposed at Kundziņsala, including those 987 000 m³ disposed in 2009. Since 2006 2 053 722 m³ of degraded soil have been disposed at Krievu Island, in 2009 no degraded soil was disposed at this site.

4.6. Waste Water Management

Ship-generated waste water is classified as liquid waste. Coastal enterprises and institutions produce waste water of 3 types – domestic (utility) waste water, industrial waste water and rainwater /urban run-off.

Utility (domestic) waste water from the larger part of the FPR territory is disposed into Riga city central sewage system. Every enterprise has concluded an agreement on waste water reception, quality and other conditions with “Rīgas Ūdens”Ltd that administers sewage system. Provided utility waste water is not discharged together with industrial waste water, quality testing shall not be organized. “Rīgas Ūdens”Ltd controls compliance with the criteria by random check.

At places with no sewage network in vicinity local biological treatment facilities or dump pits are built. In this case it is also quite important to check whether those facilities and wells are leak-proof, the waste shall be regularly removed to avoid territory pollution.

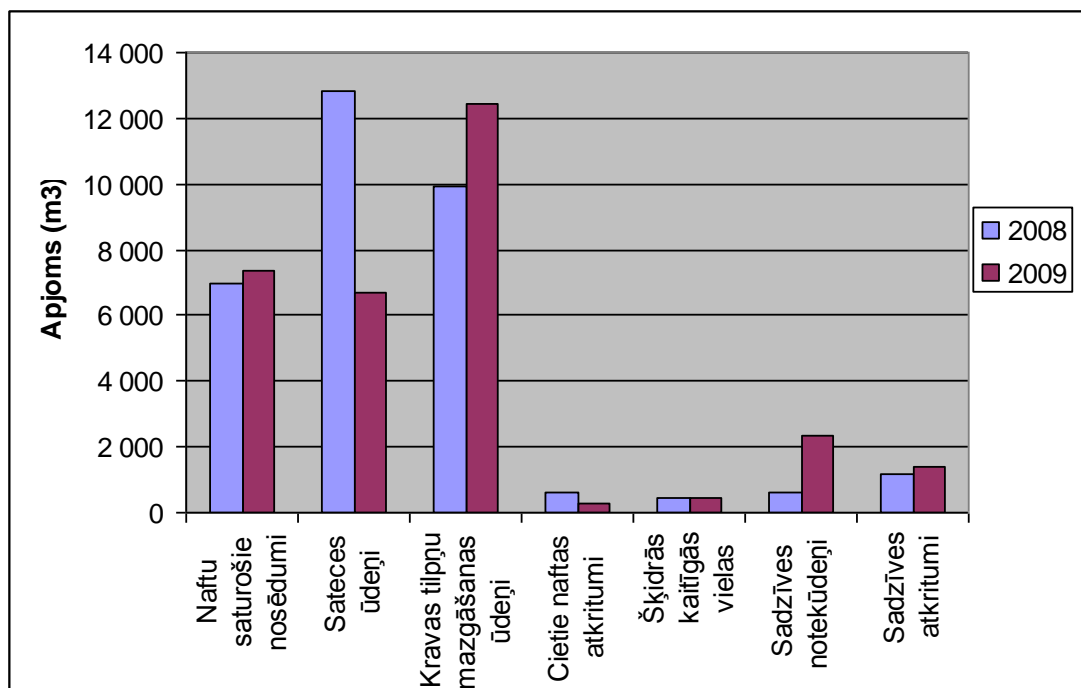
Industrial waste water – before discharge into municipal sewage system, storm overflow sewer or environment the industrial waste water must be purified.

Storm water/urban run-off is formed on the Freeport territory due to precipitation, rainwater from roofs, inner roads, cargo sites etc. Collected storm water /urban run-off is discharged into municipal storm overflow sewage system or into environment on the basis of permissions of B category. There are several storm water sewage discharge points into the River Daugava on the FPR territory- in Bolderāja, Rīnūzhi, Vecmīlgrāvis, Jaunmīlgrāvis, Sarkandaugava etc. There are network exhausts in Audupe and Hapaka ditch, and sewage later flows into the River Daugava. 15 storm water treatment facilities are located on the Freeport of Riga territory, mainly in Eksportosta area, Rīnūzhi and Kundziņsala.

4.7. Ship-generated Waste Management

The FPR waste management is provided for waste that is generated by vessels, entering the port, and enterprises, operating at the Freeport. No-special-fee system is being applied at the Freeport of Riga that means that the sanitary fee is levied from all vessels entering the port. Sanitary fee refers to reception of waste and waste water of all types, excluding polluted ballast and tank washing water. Passenger ships, cruise ships and fishing vessels have to make payments in accordance with actual volume of delivered waste.

“Eko osta”Ltd collects and manages ship-generated waste (waste waters, general household waste, solid oil products waste, and waters containing oil products) at the Freeport of Riga.



III.4. Comparative analysis of waste collected by “Eko osta”Ltd, 2008-2009

Cargo-associated waste shall be received and handled by cargo sender or receiver or, according to individual agreement, by the licensed waste management company for separate fee, i.e. the said service is not included into sanitary fee.

Ballast water, tank washings, and waters containing oil products from ship engine room are delivered to the Freeport of Riga oily water treatment facilities in Jaunmilgravis for treatment and further utilization. According to modern collection technology the polluted waters of various types might blend in the collector vessel tanks, therefore it is not possible to apply technological treatment process on the basis of oil product concentration. Still, during the collection process certain measures are taken to prevent mixing or reception of waters with such type of pollution, that cannot be treated at treatment facilities. Treatment facilities can simultaneously receive up to 4000 m³ waste waters polluted by oil products.

Waste water (sewage). Due to the fact that MARPOL 73/78 stipulates that the majority of ships have the right to discharge waste water at a distance of more than 12 nautical miles from the nearest land, the waste water is delivered by the ships that stay at the port for longer period of time. It is prohibited to discharge ship-generated waste water into the port water area of the Freeport of Riga. Outboard valves of vessel drainage systems in the Freeport of Riga water area must be locked up and sealed. In 2009 “Eko osta” Ltd has recovered and transported to Bolderaja biological waste water treatment facilities 2358,2 m³ of domestic waste waters 2358,2 m³, including 1693,2 m³ domestic waste waters from passenger ferries.

Household waste (garbage) can be ship generated or cargo-associated. Cargo sender or receiver shall ensure reception and handling of cargo leftovers in accordance with the requirements of regulatory enactments. Larger amounts of ship-generated waste are collected in the packaged form at the berth of ship’s mooring. “Eko osta” Ltd

delivers collected waste to "L&T" Ltd. In 2009 "Eko osta" Ltd has collected and delivered to "L&T" Ltd 1 395 m³ of household waste

"Eko osta" Ltd recycles the recovered *solid oil products waste* at their recycling facilities. In 2009 "Eko osta" Ltd has collected and recycled 267 m³ of oily waste. In 2008 "Eko osta" Ltd has collected and treated and transported 6 671 m³ of **oily bilge** and 7 389 m³ of **oily sludge**.

Polluted ballast water is generated by ships that use cargo tanks as ballast tanks. The amount of ballast water, that should be discharged at the port previous to recurrent loading, might reach 30% of the ship tonnage. In 2009 "Eko osta" Ltd collected and treated 12 435 m³ tank washings and polluted ballast. According to the Freeport of Riga Ship-generated Waste Management Plan the owner of berth or berth group shall ensure that on every berth there are containers for three types of waste:

- oily rags;
- food residue waste ;
- solid household waste.

Management of waste, generated on the port enterprises territory, is executed by the relevant enterprises by concluding an agreement with licensed companies or receiving relevant permission for waste management activities.

4.8. Chemical substance or mix spill cases in 2009

In 2009 9 cases of chemical substances or their mix spill were registered at the Freeport of Riga. 0,01-16 kg of oil products were spilled in the water area several times in small amounts . The largest spill was registered at MK-4 berth, with 488 kg of spilled oil products from m/v "Thor-R". The second largest spill in 2009 was detected at berth ZO-15 from vessel "Hegemann 1", that resulted in 41 kg of spilled oil products. In all mentioned cases "Eko osta" Ltd immediately carried out oil product collection and the total volume of 547 kg of oil products was collected.

On June 23, 2009 there was leakage of chemical substance - *Acetone cyanohydrin* - in Kundziņsala from 50 m³ cargo container on "Baltic Container terminal" Ltd territory . The leakage was stopped by relevant services, that immediately started cooling and chemical substance leakage from container was stopped. After the leakage the SES carried out repeated testing of Daugava water quality and issued recommendations suggesting that residents should not bathe or fish in the River Daugava. Still drinking water quality was not damaged. The mentioned case made the stakeholders assess their readiness to cope with spill or leak of chemical substance or their mix as well as their ability to eliminate spills and leaks.

4.9. Noise and vibration

Emission of **noise** on the territory of the FPR is mostly produced by technological equipment, access railway tracks as well as by motor roads. Operation of the noise sources, that are located in the centre of the territory and further from the residential areas is considered to be less important.

Up to now the population considered that the most disturbing noise is produced by the railway at places where it goes close to the residential houses (even at 30 m distance: at Tvaika street, Ezera street, in Daugavgrīva). It should be taken into account that the railway track in these places exists for a long time, besides efficient anti-noise measures to reduce railway noise are quite costly. Nevertheless, the FPRA has tried to find solutions for those problematic locations. Thus “MAN-TESS” Ltd has transferred access railway track 50 away from the residential house at No.54, Tvaika Street and has improved safety of the railway crossing at Tvaika street. The last project, that was implemented, is construction of anti-noise wall in Daugavgrīva along railway sideline in 2005.

4.10. Protected Territories and Biodiversity

There are two specially protected natural territories and one micro reserve on the territory of the Freeport of Riga - **Kremeri Nature Reserve** and **Milestības Island** that is the part of **Piejuras Nature Park**, as well as a **micro reserve** in Spilves meadows for protection of *Gladiolus imbricatus* (gladiolus or sword lily). The Freeport of Riga's territory borders on “**Vecdaugava**” **Nature Reserve** and “**Piejuras**” **Nature Park**, as well as nature reserve zone “**Daugavgrīva**”. It should be noted, that in compliance with the nature protection plans of the specially protected nature territories administrations of the said territories are responsible for SPNT management, and provided there is no relevant administration, public institutions are responsible for the relevant SPNT management – for example, Riga City Council is responsible for “**Kremeri**” **Nature Reserve** management, while Nature Protection Department – for “**Piejuras**” **Nature Park** management. .

“**Kremeri**” **Nature Reserve** was founded with the aim to preserve important bird nesting sites in the city of Riga. In 2008 biologists of the Latvian University Biology Institute elaborated recommendations for NR “**Krēmeri**” related to necessary measures for providing favorable conditions for protected bird species' nesting in SPNT.

In 2009 the FPRA implemented improvement activities on the NR “**Krēmeri**” territory, in the framework of the said activities reed and bulrush was cut on 2, 7 ha in the eastern and northern part of the territory. An artificial birds' nesting site was created in the open watercourse in 2009. After reserve inspection in 2009 the ornithologists concluded that some ten pairs of *Larus Ridibundus* (big pope) nested there.

“**Piejūra**” **Nature Park** was created in 1962. **Milestības Salina (Milestības Island)** is included into reserve zone of the “**Piejūra**” **Nature Park**. The aim of its creation is to ensure conservation and sustainable development of nature biotopes and species.

On June 19, 2008 the Freeport of Riga Authority organized Latvian State University Institute of Biology expert's inspection of Milestības Island and the expert detected such important natural assets as: grey dunes, small lakes and coastal caulescent plants. Grey dunes cover large territories along the left bank of the River Daugava. Within lowering relief there are large territories covered by reed *Phragmites australis*, that

has expanded into direction of Daugavgrīva. In the mixed swamp forest with reeds there are still some open water areas.



III.5

View of Milestības Island, 2008.

In 2009 in compliance with the ornithologists' recommendations the FPRA carried out biotope reconstruction on Milestības Island, that resulted in expanded water areas, creation of two artificial islands for birds' nesting and an artificial site for birds' nesting.



III. 6

Reconstructed biotopes of Mīlestības Island

5. SUMMARY

The Freeport of Riga (FPR) is managed by the **Freeport of Riga Authority (FPRA)**. In 2000 the FPRA was awarded ISO 9002 quality certificate, in 2003 - ISO 9001:2000 quality certificate, and in 2005 the Freeport of Riga Authority was awarded environment management certificate **ISO 14001:2004**.

With the aim to improve environment quality the FPRA has elaborated and adopted its environment policy in the framework of ISO quality standard to attain the following objective: to make the Freeport of Riga one of the most environment – friendly ports in the North-Eastern region of the Baltic Sea. In compliance with those activities the Freeport of Riga Environmental Report 2009 was elaborated.

In 2009 gross tonnage of the vessels, entering the Port has grown compared to 2008, that is why the Freeport development is implemented without any additional harm to environment. Cargo turnover (marine cargo transportation) at the Freeport of Riga constantly grows and in 2009 it has reached 29, 7 million tons.

Elaboration of the **Freeport of Riga Development Programme 2009-2018 (PDP)** was completed in 2009. (Freeport of Riga Development Programme is available at the Freeport of Riga Authority web-page - http://www.rigasbrivosta.lv/lv/media/lejupstreetdes/cat_view/118-development-programme.html).

In the framework of the Freeport of Riga Development Programme elaboration Port Development Strategy, Strategic Action Plan and Development Program Financial Analysis were completed. Sustainable development of the port is ensured by compliance with economic growth, environment protection and social requirements. In the framework of Port Development Strategy the Freeport of Riga Vision was defined, one of its main aspects being **environment and its sustainable management**.

The Environmental Report is part of the Freeport of Riga Development Programme 2009-2018 (PDP and its prime purpose is to ensure that all environmental and social considerations are taken into account during the preparation of the Development Programme. (Environmental Report is available at the Freeport of Riga Authority web-page http://www.rigasbrivosta.lv/lv/media/lejupstreetdes/cat_view/118-development-programme.html)

It was concluded in the Environmental Report that **implementation of the port infrastructure projects** can have significant impact on water quality, population and public health, air quality, biological diversity, in certain cases – on territories of culture monuments, and it can change existing landscape. No significant impact of Development Programme activities on ecological functions and integrity of Natura 2000 territories were identified – in separate cases impact will be not significant and short-term. It was concluded in the Environmental Report that implementation of Development Programme will not have significant **cross-border impact**.

In regards of **Impact on factors identified in the consultations** it was concluded that impacts due to port operations will not affect the current habitat restoration measures

in the Nature Reserve zone Milestibas Salina and Kremeri Nature Reserve. As a result of port infrastructure project implementation the current land usage for recreational purposes will not be changed. No impacts on historically contaminated sites were identified.

In regards to **cumulative impacts** it was concluded that the total amount of emissions after implementation of key port infrastructure projects will exceed the current level and also in the case if no projects would be implemented. The impact of the increased traffic intensity due to port projects implementation is assessed as highly significant. Cumulative impact on water quality due to changed hydrodynamic conditions on the FPR territory is possible.

To mitigate actual impacts it is necessary to implement environmental impact mitigation measures on the objects' territories. In the framework of Environmental Report **Good governance principles in the Freeport of Riga** were elaborated in respect of 11 areas that have to be implemented by every enterprise that wishes to start or to improve its work on the territory of the Freeport with the aim to mitigate potential negative environmental impacts.

The Environmental Management Plan (EMP) that includes environmental mitigation and monitoring activities was elaborated in the framework of the Environmental Report. In 2009 the FPR has already implemented certain part of the activities, that are included into Environmental Management Plan (EMP), elaborated in the framework of the Environmental Report.

Due to the fact that the Freeport of Riga Authority is an institution that is responsible for ship-generated waste and polluted water management at the Freeport of Riga, as well as for elaboration of ship-generated waste management plan a new "**Ship-generated Waste Management Plan of the Freeport of Riga**" was elaborated and approved in 2007, and in 2008 the plan was updated.

Starting its activities on the Freeport territory every operator shall perform initial Environmental Impact Assessment procedure to comply with the Law "On Environmental Impact Assessment" of 14.10.1998 and relevant CM Regulations, and provided the State Environment Control Bureau adopts decision to apply **Environmental Impact Assessment** procedure, the operator shall perform complete assessment procedure. Environmental Impact Assessment ensures right choice of the best available technologies for the planned activity with the aim to eliminate harm for environmental quality and population health. The FPRA provides technical support and advice to operators in respect of receiving permissions, licenses and preparing Environmental Impact Assessment.

There are 12 risk objects on the FPR territory and in accordance with the Cabinet Regulations Nr.532 "Regulations on Procedure of Industrial Accident Risk Assessment and Risk Reduction Activities" (19.07.2005.) specific documents shall be elaborated for those objects with the aim to assess and mitigate **industrial accident risk**. The relevant enterprises have prepared the necessary documents.

Cargo transshipment involving **hazardous chemical substances** takes place at the FPR territory, as well as chemical substance production using physical methods'; chemical substances are also used for production purposes generating hazardous waste. The enterprises are responsible for the substances, used for operation purposes, their proper marking, handling, employees' training etc, in accordance with the permission to carry out polluting activities of the category B or category C certificate and in compliance with the regulatory enactments.

The Port Authority supervises compliance with the Cabinet Regulations Nr.1060 of 15.09.2009. "Regulations on Hazardous and Polluting Cargo Handling and Control in Ports" provisions on the relevant port territory. Cargo transshipment berth, terminal or high risk area shall not commence its operation unless the SES MIWA has approved a plan for oil and chemical spill elimination. A berth or terminal operator shall be fully responsible for the implementation of the mentioned requirements.

On the basis of Regulations of the Cabinet of Ministers No.82 "Standard Requirements for Action Plan Elaboration to Combat Accidental Pollution in Ports, at Berths, Berth Groups and at Oil or Chemical Substance Terminals" (05.02.2008) in the end of 2008 the **Action Plan to Combat Accidental Pollution in the Freeport of Riga** was elaborated and on January 15, 2009 the said plan was approved. It is internal regulatory enactment that is available to all the parties involved as well as to the enterprises, operating on the territory of the Freeport.

Monitoring of **air, ground water quality, waste water treatment quality, bottom sediment quality**'(random check) as well as **monitoring of condition of the European Union priority bird species colonies, that are detected in Latvia**, is ongoing on the FPR territory.

Monitoring system, that ensures **air quality control**, is created on the FPR territory - 4 DOAS type (differential optical absorption spectroscopy) measurement stations OPSIS were mounted at the Freeport and the adjacent territories (since the end of 2009 three stations have been working).

Ground and ground water quality study and monitoring are initiated by the Freeport of Riga Authority, coordinating work program with State Environment Service. Since 2005 the number of surveillance wells has grown and in 2009 there were 143 surveillance wells on the left bank of the River Daugava, and 155 surveillance wells on the right bank of the River Daugava.

Quality of water basins (surface water) is controlled by Latvian Center of Environment, Geology and Meteorology in the framework of National Environment Monitoring program. Water quality is assessed in regards of the following indicators – minimal oxygen content, biological oxygen demand (5 days, BOD₅), nitrogen compound content, common phosphorus and common saprobity index

Waste water treatment quality monitoring

Provided industrial waste water is disposed into Riga city central sewage system an agreement concluded with "Rīgas Ūdens" Ltd on waste water reception shall specify polluting substances and their concentrations that waste water can contain and

frequency of waste water quality testing. "Rīgas Ūdens" Ltd organizes monitoring by random check.

Bottom sediment quality is monitored at locations where dredging is planned, in the framework of EIA process, as well as by random check on certain study territories.

Monitoring of the FPR SPNT current status

In compliance with the agreement, concluded with the FPRA, Latvian University Biology Institute implements monitoring, and in 2009 Zhurku Island, nature reserve „Krēmeri” and Mīlestības Island were inspected.

Air quality. Comparing measurement results of 2009 with 2008 it can be concluded that:

- ◆ Air quality indicators related to ozone, toluol, nitrogen dioxide and sulphur dioxide concentrations have not changed – these still do not exceed air quality limit and target values;
- ◆ In 2009 defined benzol yearly limit value was not exceeded, situation in regards of benzol pollution has improved;
- ◆ In 2009 Air quality norm was exceeded 20 times while only 35 exceedences per year are permissible, at the same time in 2008 year quality norm was exceeded 15 times, therefore air quality indicators in regards of particulate matter (PM₁₀) have worsened to some extent, still, as well as in 2008, air quality in regards of particulate matter (PM₁₀) is in compliance with norm.

In 2009 annual **ground water quality monitoring** was performed on all the Freeport territory, and the activities, that were ongoing during the last four years, were continued , carrying out new study of four FPR territories.

Ground and ground water pollution with oil products was detected in 2009 on separate port territories (in Voleri, Kremeri, Mangalsala, Krievu Island, Daugavgrīva). In 2009 situation with territories, polluted by oil products, has not substantially changed.

In respect of pollution of ground water **with organic substances, surface active compounds, macro components and nitrogen compounds**, in comparison with the last year's laboratory test results the situation on the port territory has not changed. In regards of ground water contamination by heavy metals and sulphate ions, pollution level has decreased.

In 2009 the FPRA continued historically polluted territories' treatment, that was started in 1998, including territories of the following enterprises: "OVI Riga" Ltd, "Eko osta" Ltd, "OVI" Ltd, "VL Bunkering" Ltd and "Woodison Terminal" Ltd.

To motivate enterprises to carry out territory treatment with the aim to eliminate pollution, it was decided to compensate funds, invested by the land leaseholders into land rehabilitation, in the amount of up 50% of the rent payment for the relevant land plot.

In 2009 the River Daugava **water quality** on the FPR territory was assessed as good.

Treatment facilities capacity growth in the result of treatment facilities reconstruction provided important improvement in the sphere of **waste water treatment** - at present "Eko osta" Ltd treatment facilities can simultaneously process up to 4000 m³ waste waters polluted by oil products.

Information related to chemical substances or their mix spill in the Freeport of Riga area in 2009 was analysed. 8 spills were registered in the water area and one spill on inland territory (*Acetone cyanohydrin* spill at "Baltic Container terminal" Ltd).

In 2009 territory improvement activities that were started in 2008 were continued on the Port territory with the aim to make those territories appropriate for birds' nesting. The FPRA improved territory of "Krēmeri" NR, where reed and bulrush were cut on 2,7 ha in the northern and eastern parts of the territory.

In 2009 the FPRA implemented the following reconstruction activities in compliance with ornithologists' recommendations:

- Approximately 15 meters wide and 0,5 - 0,6 m deep canal was created;
- Open water surface was expanded ;
- Dredging of 3 ha was performed;
- Two artificial islands were created using dredged soil.

The FPRA acts in accordance with valid environmental regulatory enactments, elaborates environmental policy and implements it with the aim to make the Freeport of Riga one of the most environment -friendly ports in the North-Eastern region of the Baltic Sea. For that purpose the FPRA implements not only activities to comply with regulatory enactments but also organizes additional environment monitoring, implements biological diversity conservation measures and provides support to operators to comply with environmental requirements and choose the best available technologies.

Polluted territories according to the LEGMA data base:

Nr.	Name	Address	Description
1.	"Freja" Ltd	Flotes 14	Former territory of the USSR Army was used for industrial purposes for many years, ground and ground water polluted by heavy metals and oil products.
2.	"KRS" Ltd	Voleru 1	Ground and ground water are polluted by various chemical substances, resulting from ship repair, metal processing and dying in the open air. Paint, varnish and adhesive waste is detected on the territory .
3.	"Bolderājas kuģu remonta rūpnīca" Ltd	Flotes 2	Ground and ground water pollution is detected, resulting from ship repair activities during more than 50 years.
4.	"La Con" Ltd	Flotes 6/8	Former USSR Army fuel base - for several decades Soviet fleet station, automobile park, fuel base were located there, that is why oil product and heavy metal contamination is detected on the said territory.
5.	"Blago Vest" Ltd	Stūrmaņu 1a	Former Army station and local dump, that is leveled and covered with concrete slabs.
6.	JSC "Bolderāja" former treatment facilities	Zilā 25	For 38 years waste water treatment facilities and boiler house have been in operation on this territory. Sludge polluted by synthetic surface active substances, iron, organic substances, sulphate compounds, nitrogen compounds is preserved on the territory , contamination by oil products in the result of former boiler house operation, is detected.
7.	Daugavgrīva, object possessed by the Ministry of Defense	Flotes street w/n	Former Soviet fleet base. Pollution by oil products was detected on this territory.
8.	"Rīgas jūras osta Voleri" Ltd	Zilā street 5a	Since 1979 ship repair has been carried out on this territory, therefore ground and groundwater pollution with oil products was detected.
9.	"Vižņi" Ltd	Zilā street 5	For 25 years ship repair, metal scarp storage and welding have taken place, that is why groundwater is polluted with copper and zinc.
10.	"Speja" Ltd	Zilā street 3	Former "Latvijas upju kuģniecība", ground water pollution with synthetic surface active substances is detected.
11.	"Jūras veļš" Ltd	Bolderāja highway w/nr	For 25 years equipment has been stored and repaired there, groundwater pollution with copper , zinc and oil products is detected.
12.	"Universalremonts" Ltd	Voleru street 1a	For 36 years the territory has been used for dredger repair and fuel refilling purposes, that is why ground and groundwater is polluted by oil products and synthetic surface active substances.

Nr.	Name	Address	Description
13.	JSC "Kremeri", former Latvian river navigation company	Zilā street 3	For 25 years activities related to ship and dredging equipment repair have been carried out, due to that ground pollution by oil products was detected, and increased chemical oxygen consumption (pollution factor) was detected in ground water.
14.	"Man-Tess" Ltd	Tvaika street 7a	Wood processing plant and boiler house were located on this territory. Historical pollution with oil products is detected.
15.	JSC "Starts-Rīga"	Tvaika street 68a	Historical pollution with oil products, lead and its compounds was detected on this territory. Pollution migration from adjacent territories is possible. From 1963 -1975 there was fuel refilling station.
16.	"Magnāts" Ltd	Sprīdīša street 1	After 50 years of active business activities historical oil product and heavy metal contamination of ground and ground water was detected. ;
17.	JSC "BLB Baltijas Termināls", territory of the former "Latbithim" company	Ezera street 22	Existing oil base is situated on the territory of the former superphosphate plant and waste disposal. There is historical heavy metal pollution of ground and ground water of the territory, but after accident of 2003 (volume of spill - 1200 m ³) oil product pollution of ground and ground water was detected– this pollution is pumped out by the enterprise at its own account.
18.	"Vega Stividoris" Ltd, territory of the former "Latbithim" company	Ezera street 22	Territory of the former superphosphate plant, then of chemical plant "Svaigums". Pollution of ground (heavy metals and oil products) and groundwater (heavy metals) was detected due to the fact that the enterprise is situated on the former superphosphate plant slag and waste, that is 4 m deep.
19.	Woodison Terminal" Ltd	Tvaika street 39	Former army oil base. There was continuous oil product spill in the course of 100 years period, resulting in 0.2-0.7 m thick floating oil product layer above ground water. Calculated freely floating oil product volume is 280 m ³ .
20.	"Eļļu un smervielu ražotne Rīga" Ltd	Tvaika street 35, 37a	
21.	VL Bunkering" Ltd, former Mīlgrāvis oil base territory	Tvaika street 68	
22.	"Vudisona Terminals" Ltd, former military oil base	Viestura Avenue 2	Since 1940 there has been a military oil base. Regular oil product spills resulted in territory pollution with oil products, there is also 0.51-0.76 m thick floating oil product layer above ground water.
23.	"Baltic Container Terminal"	Kundziņsalas street 1	Oil product pollution of ground water was detected. Formerly there was illegal dump at the terminal location It is possible that this pollution is historical.
24.	SIA "Eko Osta" Ltd, territory of the former USSR oil base	Tvaika street 39	Former owners left behind historical groundwater pollution with oil products.
Potentially polluted territories according to the LEGMA data base:			

Nr.	Name	Address	Description
1.	“Latvijas Rietumu Termināls” Ltd	Tvaika street 7a	The territory is included into the register due to the fact that oil product terminal with over 5000 fuel tons per year (the biggest total volume that was piped per year during last three years period) is located on the territory.
2.	“Latvijas propāna gāze” Ltd Riga export gas filling station	Zilā street 20	The territory is included into the register due to the fact that gas station is located on this territory and liquefied gas is stored there
3.	SIA „Korporācija Magnāts” Ltd, at present - “Port Magnat” Ltd	Daugavgrīvas street 83/89	The territory is included into the register due to the fact that wood processing facilities, that are processing more than 3000 m ³ of saw timber per year and the produced amount exceeds 1000 m ³ per year .
4.	“Neste Latvija” Ltd Rigas terminal	Laivinieku street 5	The territory is included into the register due to oil product storage on the said territory.
5.	The former USSR army territory – in the Freeport of Riga	Mangaļsalas street at the River Daugava	
6.	JSC “Rīgas kuģu būvetava”	Gāles street 2	The territory is included into the register due to ship yard and powerful boiler house location on this territory.
7.	JSC “BMGS”	Tvaika street 27	The territory is included into the register due to the fact that concrete and concrete products are produced on this territory with total output exceeding 20 000 cub m per year.
8.	“Latvija Statoil” Ltd terminal	Laivinieku street 7	The territory is included into the register due to oil product storage on the territory.
9.	The Freeport of Riga , Customs control check-point	Uriekstes street 16	The territory is included into the register due to the fact that facilities for incineration of garbage and other waste, that is not considered to be dangerous, were located on this territory.
10.	VEXOil Bunkering” Ltd	Atlantijas street 27	The territory is included into the register due to the fact that since 2002 an oil base with fuel volume exceeding 5000 tons per years, and incineration facilities with consumed heat capacity of 0,5- 50 MW have been located on this territory.
11.	“Gaujas Granulas” Ltd, enterprise producing woodchip pellets	Traleru street 2a	The territory is included into the register due to woodchip pellet production facilities.