Chapter 4. Oil and gas accidents – prevention and liquidation.

In this chapter we take a theoretical approach towards accidents and incidents. This reason is twofold: In Soviet times, statistics were often used as political tools, and this makes it difficult to make a completely reliable analysis. To a certain extent, this legacy still applies to Russia today. We are therefore careful not to use too many official statistics. Secondly, there is still little offshore activity in Arctic waters, thus limiting the amount of empiric data available. Nonetheless, in this chapter we examine some accidents which occurred in the Arctic, such as the Usinsk oil spill in 1994. This chapter also describes the emergency rescue routines in Murmansk oblast, together with regulations for emergency preparedness and response for the oil and gas sector.

All the information presented in this chapter is accompanied by reference data, opinions from specialists, legal notes and illustrations. Several situations are examined using Murmansk oblast as an example.

4.1. Accidents and incidents: causes and consequences

Here's a thought…

Oleg Mitvol, deputy director of the Russian federal service managing the oversight of natural resources (Rosprirodnadzor) said in an interview that spills of oil and other oil products take place every two weeks in Russia, RBC Daily Russian news agency reported in September 2005. According to RBC, Russian experts estimate that 3-7 per cent of all extracted oil is lost during extraction and transportation. The official numbers are much lower.

4,1,1 Accidents involving oil pipelines

In 2003, according to data from Russia's Ministry of Civil Defence, Emergencies and Disaster Relief, there were 48 accidents on main and intrafield pipelines which led to emergency situations (compared with 55 in 2002).[1] However, other sources states that the number of accidents involving oil pipelines has increased by 20% over the course of several years.[2]

Here's a thought…

If you believe in official statistics, then to not believe in miracles is simply foolish. For example, in the autonomous district of Khanty Mansisk during 2003, the number of accidents increased by 50% compared with 2002 (with 92% of these caused by pipeline corrosion), while the quantity of oil spilt went down by 62%. Here, there is either an obvious underestimation of the figures submitted by petroleum experts, or the enterprises' emergency services are simply reacting amazingly quickly.[3]

Here's a thought…

Russia is the only country in the world today where regular, significant oil losses during extraction and transport are perceived as the norm. The generally accepted global oil industry standard is "zero losses", i.e. losses in the region of 0.1% and below.[4]

The extent of oil leaks resulting from pipeline accidents has been estimated differently in Russia by official and other services, ranging from almost three to 20 million tonnes per annum.

According to data from "Greenpeace Russia", on average, at least 15 million tonnes of oil leaks out annually in Russia as a result of accidents, with the amount of oil entering aquatic ecosystems estimated at 4.5 million tonnes. This, however, is not taken seriously by Russian companies, see table "*possible emergency situations: type, probability and scale, as presented by Gazprom*" page 16 in chapter two, where pipeline leaks are anticipated to happen once every 1000 years.

Komi Republic: the Usinsk accident[5]

[1] *http://www.russotrans.ru/press-centre/transport.news/page.17*
[2] *http://www.aksionbkg.com/press/110/?i_99=459&print=yes*
[3] *Lyubov Petrukhina, the "Kompromat" journal: http://kompromat.flb.ru/material.phtml?id=7053*
[4] *Sakhalin Watch: www.sakhalin.environment.ru/oil/oilrazliv/pub/)*
[5] *According to data contained in the "Tribune": http://www.tribuna.ru/material/060804/ftp/04.pdf*

The Usinsk oil accident in 1994 is referred to as the August accident. According to the official version, the accident can be attributed to leakages of 100,000-120,000 tonnes of oil in the Vozey-Golovnie pipeline between August 12 and 26. According to various estimates, oil escaped from various holes into the tundra from structures belonging to the "Komi Oil" joint-stock company, along which oil is transported from fields in the Usinsk region and the Nenetsk district.

This oil pipeline, with a diameter of 720 mm, was brought on line in 1975 and has been operating since then without any maintenance or repair work being undertaken. As far back as the spring of 1994, it had started to visibly disintegrate. The Pechora State Scientific Research and Design Institute for the oil industry concluded that part of the pipeline should already have been demolished already in 1990.

At that moment, world agencies conveyed news of the world's greatest environmental catastrophe around the globe. Only in Komi did officials continue to pretend that nothing had happened.

According to official estimates, 115 hectares of tundra were contaminated. However, it is clear today that this figure was strongly underestimated. Over a period of 4 whole years, the clean-up operation in Usinsk cleansed in excess of 400 hectares of oil.

In fact, in excess of 60,000 people in the Usinsk region lived in the area affected by oil contamination. In the autumn of 1994, fishermen in Pechora observed that fish caught in the stream had a characteristic taste of kerosene.

Oil discarded with water piled up in hollows, bogs, rivers and streams where cattle grazed and the inhabitants of Pripechora stockpiled their hay.

Over the following years, scientists noted an increase in the incidence of disease among inhabitants in the settlement of Kolva caused by a weakening of their immune systems. By the end of 1994, farms in the region saw an increase in cattle plague. This process reached a peak in 1996. Scientists discovered high levels of cadmium and zinc in a number of potato samples grown in the Usinsk region, and lead in cows' milk and mothers' milk.

The oil spill rendered the biggest blow to all the inhabitants of Pripolyar'ya. From 1995 onwards, the number of white fish, white salmon and graylings in the Kolva River declined sharply. During these years, the richest spawning grounds in the River Usa declined. A large number of migratory birds which touched down on land inundated with oil perished.

In December 1994, a committee of experts from the UN's department on humanitarian issues arrived in Usinsk. The committee, which was made up of representatives from the UN, the EU, Norway, USA and Canada, proposed a plan for eliminating the consequences of accidents, based on its experiences in dealing with oil spills at various places across the globe.

As has been demonstrated in practice, the methods proposed did not resolve the problem in Usinsk.. However, international support manifested itself in 1995 when the World Bank granted the "Komineft" joint-stock company a loan of USD 99 million, followed shortly after by a USD 25 million loan granted by the European Bank for Reconstruction and Development to oil workers.

An international contest to eliminate the consequences of the Usinsk accident was announced. The winner was the Russo-American enterprise "Khartek". The company proposed the following plan: damming all areas contaminated with oil, installing hydraulic gates on streams, removing oil sludge from the soil surface and transporting it to sludge tanks, and effecting biological re-cultivation of the contaminated area.

Here's a thought…

"The ecological damage to the environment caused by oil companies is not diminishing, despite the increase in investment in nature-conservation measures"[6], according to Ivan Blokov, director of "Greenpeace Russia".

In 1999, the entire burden of clean-up operations fell on the shoulders of the company "LUKOIL", the new owner of "KomiTEK". The company conducted an inventory check which showed that 750 hectares was still inundated with oil and needed to be rendered habitable again. The company undertook to clean-up accidents over a period of five years. By 2004, 80% of the planned work had been carried out. Half a billion roubles was appropriated for this work.

[6] *http://www.aksionbkg.com/press/110/?i_99=459&print=yes*

4.1.2 Accidents involving transport by oil tanker

Here's a thought...

When the Exxon Valdez oil tanker ran aground off the Alaskan coast in 1989, 40,000 tonnes of oil poured out, contaminating 1,200 km of coastline. The probability of an accident involving this tanker was calculated as one in every 241 years of operation. The tanker had only been in operation 12 years.[7]

Statistics show that more than half of accidental oil spills can be attributed to tanker shipments. Of these accidents, 75% can be attributed to human error.

According to official Russian statistics concerning accidental oil spills in Russia over the period 1974-2004, the main problems concerning safety violations and oil spills occur when undertaking loading and unloading operations at terminals.

Table: **"Causes and the number of oil spills in Russia 1974 - 2004"[8]**

Causes and number of oil spills from 1974-2004 in Russia				
Nature of the operation/volume	Less than 7 tonnes	7-700 tonnes	In excess of 700 tonnes	Total
Freight handling				
Loading/unloading	2817	327	30	3174
Bunkering	548	26	0	574
Other operations	1177	55	1	1233
Emergency situations				
Collision	167	283	95	545
Grounding	232	214	117	563
Hull damage	573	88	43	704
Fires and explosions	85	14	30	129
Other/unknown causes	2176	144	24	2344
Total	**7775**	**1151**	**340**	**9266**

The Arkhangelsk region: Accident in the White Sea

In 2003 the Volga Oil Fuel Shipping Company "Volgotanker" opened a loading complex for exports of petroleum products in the Onega Sea trading port. In practice a storage tanker was placed in the Onega Gulf near Osinki Island, where small ships travel along domestic waterways and deliver petroleum products to large tankers.

Here's an opinion…..

"All the rubber boots in town were sold out, recalls Sergey Gorbunov, journalist of the local newspapaer "Onega". "Volgotanker" employed people to clean up after the oil spill. – They spilled much oil, and not one barrel as the company says. Nobody had ever seen so many jelly-fish and sea-stars on land on the island Osinki. Even the seals were thrown onshore covered with fuel oil. I saw one seal dying with my own eyes[9].

During a storm on September 1st, 2003, "Nefterudovoz-57" storage tanker, while trying to moor to the big storage tanker, was dented in the stern by another boat, and there were tore several holes in the hull of "Nefterudovoz- 57"

The spill was first discovered by the local population when the oil four days after the accident. The spill stretched 74 kilometers, along the shore line everything was covered in sticky oily lumps that

[7] *http://www.yabloko.ru/Themes/SRP/srp-12.html*

[8] *Analysis by the Central scientific research institute (a Federal State unitary enterprise) named after the academic A.N. Krylov and the ITOPF on accidental spills over the period 1974-2004*

[9] *http://eco-pravda.km.ru/sreda/rk3f4.htm, N.MIROSHNICHENKO "Russian Courier" -February 3rd 2004. .*

stuck to birds' feathers that later had to be cremated by the hundreds. Moreover, fishermen in the neighboring villages of Lyamets and Purnem caught oil residue in their nets.

According to V. Uroshnikov, general director of The Northern Shipping Company, the oil terminal's management did not correctly coordinate its plan for cleaning up oil-spills, while the terminal itself never went through one state environmental inspection.

Furthermore, the cleanup was implemented by people who did not have adequate qualifications or equipment. For example, the booms that they tried to install got on the boat's propeller and gave no results. According to eyewitnesses, the Volgotanker Company's management organized an open burning of the entire collected oil residue and all of the dead birds.

Vitaly Leskovich, the head of the Russian sea inspections, stated that "representatives from the Volgotanker Company not only hid the spills existence, but also reported false information about the spill being cleaned up." This "false information' mislead the civil defense and emergency service administration, whose representative announced to Arkhangelsk journalists on September 4th that "no environmental catastrophe had occurred and that all the effects had been cleaned up in 50 minutes", while animals of the Onega Gulf were dying by the hundreds in the oil residue.

Here's an opinion…
According to the head of Arkhangelsk Centre for hydrometeorology and Environment Monitoring Vladimir Korobko, several measures must be undertaken in order to reduce heavy consequences of the oil pollution. First, effective plans of oil spills elimination should be developed. Such documents exist in theory but as showed the accident in Onega Bay, their implementation is quite poor. Second, the system of environmental and industrial monitoring should be established. Third, the shipping companies should be put under control to make them follow legislation demands and norms. Finally, the expert evaluation of the oil and shipping companies should be carried out more strictly[10].

On September 3rd Alexander Ipatov, captain of the Onega port, allowed the environmental catastrophe's culprit to leave the gulf. Ipatov only reported the accident to the Russian Federation's Ministry of Transport in accordance with the port captain's duty instructions. There were no other authorities indicated in the instructions.

Vasily Ramzaev, captain of the "Nefterudovos-57" also shared the same dismay. On October 14th 2006 the prosecutor's office initiated a criminal case in accordance to article 263 of the criminal Code of the Russian Federation "breaking traffic safety laws and usage of railroad, air and water transportation." Inspection results concluded that 538,893 tons of oil was dumped into the sea while 8,893 tons were cleaned. The oil spill was able to reach a length of 1750 meters from the scene of the accident in the course of one hour and 38 minutes before any actions were taken.

The prosecutor's office made an effort to punish the individual's responsible but this was stopped by the new amendments of article 263 of the criminal code of the Russian Federation. These amendments, from December 2006 left out "significant harm and damage" as punishable acts by law. Consequently, the only charges left to pursue were the responsibility for injury or loss of life, but since captain Ramzaev did not hurt anyone except the environment, there was no point in prosecuting him. With that the case was dropped on January 14th 2006.

But numerous inspections proved "Volgotanker" company guilty of the oil spill. The company had its license to reload oil revoked and was fined to pay 12 million rubles to the Onega regional government's budget. However, "Volgotanker" immediately appealed the decision. The case is still in the courts.

4.2. Oil spill classification and responsibilities

[10] http://info.forest.ru/oil/04/oil_0436.htm#, *«Oil review» - Russia. Годовщина разлива в Онежской губе:: «Independent view» 8.09.2004.*

There are three levels of oil spill classification, although the operator is obliged to notify the relevant authorities about spillages at any level.[11]

Local spills are defined as spills not exceeding 500 tonnes of oil. The responsibility of localisation and elimination of a local spill is carried out by the workers and equipment of the organisation at whose facility the accident took place. In the event of insufficient manpower and/ or equipment, this is recruited on a contract basis from contracting agencies with experience in eliminating accidental oil spills.

Comments by a legal expert:

The following measures have been identified for providing notification of oil spills and eliminating them: measures undertaken by government bodies, local government and organisations which carry out field exploration, oil production, treatment, transport and the storage of oil and petroleum products, as established by Resolution No. 240 of the Government of the Russian Federation dated 15.04.2002 "regarding the procedure for organising measures for providing notification of, and eliminating, spills involving oil and petroleum products on the territory of the Russian Federation".

In the case of a ***regional level spill,*** defined as an oil spill consisting of 500 to 5,000 tonnes of oil, the operator is obliged to report the spillage to the rescue co-ordination centre in Murmansk which, in turn is responsible for notifying all the special services of the accident. After this, the spot is protected by booms (which serve to localise the spot, preventing it from spreading). The disaster preparedness commission in the region then convenes to work out solutions as to how to deal with the spillage. Members of this commission may include directors of the civil defence and emergency centres for managing crisis situations, regional environmental departments and company environmental services.

Spills in excess of 5,000 tonnes are designated as spills at a ***Federal level.*** This represents an accident on a large scale, with an extended circle of operation leaders gathering to deal with the situation**.** To localise and eliminate accidental spills of oil and petroleum products at a federal level, the manpower and resource services of the Unified State Emergency Warning and Eradication System are also enlisted, along with terminal resources comprising specialist equipment and engineers of Russia's Ministry of Civil Defence, Emergencies and Disaster Relief, manpower and resources from Russia's State Marine Rescue Service and resources from foreign companies as agreed upon by the plenipotentiary bodies of the Government of the Russian Federation.

For your information:

In order to improve the interoperability of emergency and rescue services functions in the Barents Region, a BEAC Working Group on Emergency and Rescue Services Co-operation (WG ERS) was established in September 2002 to strengthen and expand ongoing, transboundary, emergency and rescue services co-operations at the county level.

4.3. Drafting plans for eliminating accidental oil spills and their content

Russian legislation obliges all companies whose activities are connected with the transport or storage of oil-based materials to have a plan for eliminating oil spills. The main legislative instruments in force in the Russian Federation which outline requirements pertaining to the drafting of plans for eliminating accidental oil spills, as well as the procedure for organising work in this sphere, are as follows:

1. Resolution No. 613 of the Government of the Russian Federation dated August 21, 2000 "regarding urgent measures for providing notification of accidental spills involving oil and petroleum products and their elimination";

2. Resolution No. 240 of the Government of the Russian Federation dated April 15, 2002 "regarding the procedure for organising measures concerned with providing notification of, and eliminating, spills involving oil and petroleum products on the territory of the Russian Federation".

[11] *The governing body responsible for eliminating oil spills, St. Petersburg, the Central scientific research institute of the maritime fleet of the Ministry of Transport, 2002*

These legislative instruments formulate requirements relating to drafting and executing plans for eliminating accidental oil spills at various levels: local, regional, interregional and federal.

For your information:

The Federal plan for eliminating accidental oil spills, specifies the strategy, tactics and co-ordination of work involved in elimination of large-scale accidental oil spills in offshore zones within the Russian Federation. It was ratified by the Ministry of Transport, the Ministry of Natural Resources and the Ministry of Civil Defence, Emergencies and Disaster Relief of the Russian Federation in 2003. This plan was developed on the basis of interregional plans for eliminating accidental oil spills, in particular, the plan for eliminating accidental oil spills in the Western Arctic.

The drawing up of a local plan for eliminating accidental oil spills, i.e. at the level of the specific, potentially hazardous installation, is also regulated by a Federal Russian law "regarding the industrial safety of hazardous production facilities". The plan for eliminating accidental oil spills should lists the level of manpower and resources required to eliminate the spill, the expected area covered by the spill, the properties of the oil, and the natural and weather conditions at the installation site.[12] Furthermore, the plan for eliminating oil spills must also provide scenario models for possible spills. Modelling is based on basic data, including a description of the installation, the nature and characteristics of the product, the hydrometeorological and hydrogeological conditions and the presence of environmentally vulnerable zones in the area of possible pollution. The objective of modelling accidental oil spills is to determine the possible consequences of accidental oil spills, and their significance and impact on the population, vital infrastructure and the natural environment.

Here's a thought…

The main obstacles in eliminating spills:

- lack of manpower and resources;
- Deterioration of vessels and specialist equipment;
- remoteness of the base for emergency services and equipment from the site of possible spills;
- absence of modern facilities for detecting, checking and forecasting the behaviour of accidental oil spills;
- weather conditions, ice, wind, waves, and darkness

Within the law regulating the drafting of plans for eliminating oil spills at sea, a number of basic requirements have been laid down for companies which limit the timeframe for starting the clean-up of spills:

- not more than 4 hours from the moment a report is received for an oil spill in water. Considering that response units are usually found at the regional centre and must be deployed to remote installations or tankers, such a requirement can very quickly become impractical;

- not more than 6 hours in the event of a spill on land from the moment the spillage of oil or petroleum products is discovered, or from the time information is received concerning the spill (Resolution No. 240 of the Government of the Russian Federation dated April 15, 2002 "regarding the procedure for organising measures concerned with providing notification of, and eliminating, spills involving oil and petroleum products on the territory of the Russian Federation").

Here's a thought…

Even a small spill can cause great damage. An oil spill of 100 cubic meters on the coast of Finnmark in 1979 killed 10 000 – 20 000 sea birds.

If the oil spill happens from an offshore platform or terminal, the company operator or special service with whom the corresponding contract was concluded must have sufficient emergency and rescue means on site at their disposal in order to eradicate a spill of up to 1,500 tons .

If the oil spill happens from a tanker, the rescue facilities must be sufficient to eradicate a volume of oil equivalent to two tank fulls, which amounts to 4,000 - 5,000 tonnes for a tanker with a dead weight of 20,000 tonnes and 12,000 tonnes for a conventional tanker with a dead weight of 70,000 tonnes.[13]

The plans which have been drawn up for eliminating oil spills in relation to every oil and gas project have a local character; both manpower and resources are attached to the areas where the installations are located.

Todays practice where the State emergency rescue services enter into agreements to provide for emergency preparedness with a number of companies may result in problems if a situation with several incidents at the same time occurred in the region ,.[14]

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[12] *The governing body responsible for eliminating oil spills, St. Petersburg, the Central Scientific Research Institute of the Maritime Fleet of the Ministry of Transport, 2002*

[13] *"The shelf does not need oil spills" - "Neftegazovaya vertikal" journal, January 2006*

[14] *The risk of oil spills occurring, and organising their elimination, in the case of tanker shipments in the Barents Sea*
Valentin I. ZHURAVEL, the scientific research centre "Informatika riska", Marat N. MANSUROV, Andrey V. MARICHEV, the All-Russian

Specialists have observed that the plan for eliminating accidental oil spills is essentially a document containing the results of scientific research work, rather than a practical guide for companies involved with petroleum products.

Here's a thought…

"Until such time as calculations made in plans for eliminating oil spills prove that an oil spill from a tanker with a dead weight of 100,000 tonnes can be cleaned up by the manpower and resources available in the region, the journey of such a tanker and its load must be prohibited".[15]

A number of companies in the oil and gas sector do not view the plan for eliminating accidental oil spills as an instrument of environmental management within the company. Instead, they view the plan as proof of their preparedness to deal with possible spills from a technical point of view for the benefit of environmental bodies. In other words, they create these plans for the benefit of State structures which are responsible for environmental safety. As far as the owners of vessels are concerned, the plan for eliminating accidental oil spills becomes another form of reporting, making life more complicated, but failing to bring any benefit in practice.

A major shortcoming of the plan drawn up for eliminating accidental oil spills in the West Arctic region is the absence of any analysis of the possibilities for efficient monitoring of oil spills. In the absence of a well thought-out system, any efficient and timely actions for giving notification of accidents, and eradicating them, are generally impossible.

At present, there is no *de facto* State system in this region for monitoring the environment; this includes a system for tracking accidental oil spills by aeroplane or satellite, or discharges of polluted ballast and bilge water in the northern sea route.

Here's a thought…

"The following areas, which have been **singled out in the plan** for eliminating accidental oil spills in the Western Arctic region as areas with an increased accident risk, are zones which the Murmansk Basin Emergency Rescue Service is responsible for - the Gulf of Kandalaksha, Onezhsk Bay, Dvina Bay and the narrow entrance to the White Sea, the Varandey terminal and the Kola Gulf in Murmansk oblast – **but were not taken into consideration in the Federal plan** for eliminating oil spills".[16] Contradictory statement!

In order to make plans for eliminating accidental oil spills a practical instrument for responding to emergency situations, a lot of work is still required to systematically study the content of the plans.[17] Namely:

1. The plan for eliminating accidental oil spills must concentrate on the actions carried out under the prevailing circumstances, instead of on the technical characteristics of the equipment used to eliminate the spills which usually constitute a large portion of the plan.

2. All measures must be directed at reducing the probability of incidents and the magnitude of their consequences. Prevention of accidents is the most economically effective way of managing risk, and entails adoption of measures that ensure environmental safety. Although the plan is entitled "For providing notification of, and eliminating, spills involving oil and petroleum products", the first part (providing notification) is virtually absent.

3. The hydrometeorological conditions in the area of the oil spill influence the choice of technology for combating the spill, and consequently represent factors which determine the magnitude of consequences from accidents. Therefore, the section entitled "Special geographical and hydrometeorological features of the area where petroleum products have been spilled" must be included in the plans for eliminating oil spills. A number of resolutions advocate this. However, it is not included in other sections of the plan and, therefore, does not have any practical value. In order to render this information useful, accident scenarios must be drawn up which correlate weather conditions with possible actions.

4. The concept of "sufficiency" in terms of manpower and resources for eradicating accidents must be more clearly defined. At the present time, the timeframe specified for localising a spill on water should

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scientific research institute for natural gases and gas technologies (a limited liability company)

[15] *The risk of oil spills occurring, and organising their elimination, in the case of tanker shipments in the Barents Sea*
Valentin I. ZHURAVEL, the scientific research centre "Informatika riska", Marat N. MANSUROV, Andrey V. MARICHEV, the All-Russian scientific research institute for natural gases and gas technologies (a limited liability company)

[16] *A. Sutyagin, project entitled "Monitoring the Baltic pipeline system"*

[17] *Kononenko M.R. Ph.D., environmental specialist at the limited liability company "KONTUR SPb", lecturer at Russia's State University for hydrometeorology*

not exceed 4 hours (as per Government Resolution No. 240). The number of booms required should also be indicated with a sufficient degree of accuracy (based on the volume of the spill and the conditions under which specific petroleum products spread). Other factors, in particular, the capacity required to store the mixtures containing oil on a temporary basis, and the capacities for cleaning oily waters, are planned without proper methodical implementation.

4.4. Eliminating spills

Here's a thought…

"There are frequent occurrences of enterprises acknowledging the spillage of oil products but not reporting the case to the relevant departments", according to Oleg Mitvol, deputy head of the Federal Service for Supervision of Natural Resource Usage.[18]

4.4.1 Notification and decision-making.

According to the Russian law, the notification sequence and procedure must be designated in the "Plan for eliminating accidental oil spills" at a local, regional or federal level. All the persons involved in the production and transhipment, storage or transport of oil must be familiar with the rules pertaining to the notification procedure.

Notification of the relevant State bodies is the first and foremost obligation when an oil spill happens. This is a legislative requirement. The nearest maritime rescue co-ordination centre (in the event of a spill at sea), or the centre for managing crisis situations within Russia's Ministry of Civil Defence, Emergencies and Disaster Relief, in the event of a spill on dry land or internal bodies of water, must also be notified.[20]

The decision-making process determines the immediate and long-term operating tasks for eliminating the spill, as well as individual actions while work is being carried out.

For your information:
Receiving and managing notifications of acute pollution in Norway

The Norwegian Coastal Administration's Department for Emergency Response is responsible for governmental preparedness for acute pollution. Whenever the 110-central or a coastal radio receives notification, the notification is relayed to the Norwegian Coastal Administration's Department for Emergency Response. The department's on-duty personnel monitor the situation, place requirements on the polluter, give advice or take action in accordance with the nature of the incident.

Annually, approximately 500-600 notifications of acute pollution require following up. In case of accidents involving other chemicals or dangerous goods, the Norwegian Coastal Administration may also utilise the industry's own expertise through a 24/7 counseling service established by industry companies.

In the event of notification of a major oil spill to the Norwegian Coastal Administration's duty system, personnel and equipment are mobilized immediately. The mobilization is carried out in cooperation with the affected region or polluter according to the Norwegian Coastal Administration's contingency plan. Organizations required to maintain separate preparedness have their own notification routines for pollution[19].

Anyone who discovers acute pollution has a duty to notify
the Norwegian emergency phone number
Calling from Norway: 110
Calling from abroad: +47 33 03 48 00
Vessels at sea report to the nearest coastal radio station.

Decisions are taken by a special commission. It must assess the extent of the spill, define immediate tasks, and determine which practical operations and methods should be used based on the resources available. In the event of an incident at sea, the rapid response group must determine from the outset the type, quantity and location of the oil spill. Then, using this information as a basis, the group must choose a practical approach in terms of limiting the spread of oil.[21]

4.4.2 Estimating the Volume of a Spill

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[18] *Anna Kireeva, The number of accidents involving oil is continually on the increase http://www.bellona.org/bellona.ru/russian_import_area/energy/39771*

[19] Kystverket.no

[20] *The governing body responsible for eliminating oil spills at sea, as well as on lakes and rivers, St. Petersburg, the Central Scientific Research Institute of the Maritime Fleet of the Ministry of Transport, 2002*

[21] *The governing body responsible for eliminating oil spills at sea, as well as on lakes and rivers, St. Petersburg, the Central Scientific Research Institute of the Maritime Fleet of the Ministry of Transport, 2002*

By observing the thickness of the oil film, and its appearance on the surface of the water, it is possible to estimate the quantity of oil spilled. If the surface area of the spill is known, the total volume of the oil can be calculated from this information**.** (Source: Metcalf & Eddy. Wastewater Engineering, Treatment and Reuse. 4th ed. New York: McGraw-Hill, 2003. 98.)

	Film Thickness		Quantity Spread	
Appearance	**In**	**mm**	**gal/sq mi**	**L/ha**
Barely visible	0.0000015	0.0000381	25	0.365
Silvery sheen	0.0000030	0.0000762	50	0.731
First trace of color	0.0000060	0.0001524	100	1.461
Bright bands of color	0.0000120	0.0003048	200	2.922
Colors begin to dull	0.0000400	0.0010160	666	9.731
Colors are much darker	0.0000800	0.0020320	1332	19.463

4.4.3 Localising the spill

For your information:

The climate of the Barents Sea is under influence by both currents from the warmer Atlantic sea and the cold Arctic Seas. A result of this, is big and rapid changes in the weather. The air temperature in February varies usually from -4 to -25 degrees Celcius, and in august from +1 to +10C. The sky is usually cloudy, and there are often storms. There is a lot of ice in the Sea. The peak of the ice cape is in April, when 75 per cent of the Sea is covered with ice. In years with a lot of ice, the ice reaches the coast of the Kola Peninsula.

The main primary task when eliminating oil spills is localisation of the petroleum products in order to prevent the oil spot from spreading. Special booms that enclose the area are used for this purpose.

Booms must be able to function with wave heights of up to 2 meters and current speeds of up to 1 knot in open water, and with wave heights of up to 1 meter and current speeds of up to 1 knot in sheltered or semi-sheltered areas of water. In practice, oil is spilled while it is being collected and booms are practically useless under conditions of strong winds and high waves. In fact, under the influence of wind and currents, oil spreads and again covers the clean surface. Hence, all calculations of required manpower and resources in plans aimed at ensuring an adequate response in eliminating oil spills should mainly be considered as tentative estimations of their minimum quantities.[23]

For your information:

Booms are designed to localise oil spills which occur in reservoirs, backwaters, rivers and port waters, as well as enclose vessels when receiving fuel and during load operations involving oil tankers. They are usually made from rubber and inflate quickly, floating to the surface in order to prevent the spot from spreading.[22]

For your information:

According to information from "Sakhalin Watch", on September 8, 2004, Typhoon Songda resulted in the stranding of "Christopher Columbus". This vessel had been chartered by the company "Sakhalin Energy" to construct an underwater pipeline within the framework of the Sakhalin-2 project. Experts suggest that the cause of the accident was the failure of the main engine or rudder control. Three oil tanks were punctured as a result of the impact of stones. Supposedly, an excess of 200 tonnes of fuel oil appeared in the coastal area. Fuel oil and diesel fuel covered around 5 km of coastline, including the waters in the sea port of Kholmsk, municipal beaches and the seaside quay located 300 m from residential buildings.

According to testimony from eye witnesses, the fuel oil even passed over windows of office buildings situated on the quay. All of Sakhalin Energy's manpower and resources, including the pollution control ship "Smit Sakhalin", which is used in eliminating oil spills were located more than 600 km from the site of the tragedy. Sakhalin Energy's principal contractor in eliminating oil spills, the company "Ecoshelf", was unable to react efficiently. The plan for eliminating oil spills under the Sakhalin-2 project is still at the development stage. Its final version is planned by the end of the project's implementation in 2007, despite the fact that in 2003, it received a favourable decision from State environmental experts. Sakhalin Energy's draft plan for eliminating oil spills does not generally make any provision for accidents which occur on contractors' vessels beyond the area of operation of the company's facilities, including on platforms, pipelines and terminals.

Although the authority responsible for civil defence and emergency situations and the local basin emergency rescue

[22] *http://www.universalinternetlibrary.ru/book/ginness2003/43.shtml*
[23] *http://www.securpress.ru/issue/Tb/2005_2/neft_razliv.htm*

service in Sakhalin oblast received information about the accident almost as soon as it occurred, they were unable to set about eliminating the consequences and assessing the damage. High waves prevented them going out to sea to put up booms. Cleaning operations, which were conducted by about 30 people on September 9, were limited to gathering the contaminated soil from the beach and sea front towns using shovels and laying out oil-absorbing cloths on the shore. 20 hours after the spill, no measures whatsoever had been taken to localise the oil spill in the sea using booms. The authorities alluded to the stormy weather. However, not one specialised vessel for eliminating oil spills arrived at the site of the accident.[24]

4.4.4 Collecting oil which has poured out

Generally, skimmers, which collect petroleum products from the surface of the water, are used to collect oil. The efficiency of collection should be collection of at least 50% of the volume of the largest wing tank over a 12-hour period. The calculated collecting efficiency of specific skimmers is achieved if the film of oil is on the order of 10 mm thick, which is only possible if the oil spot is enclosed by booms instantaneously.[25]

For your information:

According to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating to that Convention, MARPOL 73/78; International Convention for the Oil Pollution Preparedness, Response and Co-operation (1990), Government Decree of the Russian Federation On Interim Measures for Oil Spill prevention and Oil Spill Response (21.09.2000) it is obligatory to have onboard Shipboard Oil Pollution Emergency Plan, which contains the actions of the crew in case of an accident

In practice, such occurrences are comparatively rare: oil usually manages to spread over a large area and the film is usually 0.5 - 5 mm thick. In this instance, the actual oil collection efficiency falls sharply. Furthermore, unfavourable weather conditions, such as poor light, wind, snow, waves, storms, polar lows, ice, fog, low temperatures and high waves that often are present when accidents occur, also have an impact on collecting efficiency.[26]

Consequently, under the actual conditions present when eliminating spills, the efficiency with which oil is collected is estimated at 10-15% of the efficiency of the skimmer pump. All the equipment is deployed directly at the site of the incident.

After the expanse of water have been cleaned up, specialists from the basin emergency rescue service must treat the vessel involved in the incident. All the petroleum products and oily mixtures collected when cleaning up the incident must be collected in a special container and sent for reprocessing.

According to the law, if the oil film is less than 0.1 mm thick after the skimmers are used, headquarters can give the order to stop collecting the oil. The remaining petroleum products are collected using sorbents. In extreme cases, for example when the spot moves to prohibited areas, it may be processed using dispersion media.

Dispersion media break up the oily film, preventing it from spreading. However, they have an extremely negative impact on the environment. Therefore, they are only used in extreme cases, and only when authorised by the environmental committee in the respective oblast.

For your information:

Sorbents are materials which are capable of absorbing large quantities of petroleum products, thereby impeding their dispersion into the environment.

Dispersion media are substances which break down the oily layer into minute droplets and which do not mix with one another.

Here's a thought…

According to data from the Murmansk Basin Emergency Rescue Service, dispersion media have never been employed in Murmansk oblast.[27]

Here's a thought…

During the Fedje accident in Norway in January 2007, oil eating bacterias were released into the waters.

4.5 The Barents Sea's Emergency Rescue Organizations

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[24] *A. Sutyagin, project entitled "Monitoring the Baltic pipeline system"*
[25] *http://www.securpress.ru/issue/Tb/2005_2/neft_razliv.htm*
[26] *http://www.securpress.ru/issue/Tb/2005_2/neft_razliv.htm*
[27] *Anna Kireeva: Programme for giving notification of oil spills - "Formal'naya bumazhka" http://www.bellona.ru/russian_import_area/energy/renewable/41846?printerfriendly=yes*

The federal state enterprise Murmansk Basin Emergency Rescue Service and the company Ekospas-Murmansk are the two service agencies in Murmansk responsible for cleaning up after emergency situations involving oil and gas in the region. The Arctic Sea Special Inspection is responsible for making sure that the government protects the sea environment and the management of natural resources. The Emergency Situations Ministry of the Russian Federation is responsible for general control of safety in the Murmansk region, as well as taking part in emergency rescue operations.

4.5.1 The Federal Government Unitary Enterprise Murmansk Basin Emergency Rescue Service.

The Federal Government Unitary Enterprise, or MBERS, belongs to the Russian government's emergency sea rescue coordination service and is under the Ministry of Transport's supervision. This ministry coordinates all work that is connected with Russia's basin emergency rescue administrations and sea rescue coordination services. Some of the main tasks of the MBERS include helping people and boats at sea and cleaning up hazardous oil spills in the sea. The staff at MBERS consists of 284 people, including 75 and 84 at the Arkhangelsk and Kandalakshski branches, respectively.

Here's a thought…

In practice, the main vessels of the Murmansk Basin Emergency Rescue Service are leased abroad under contract.[28] In the Kola Gulf, the only vessel at the disposal of the Murmansk Basin Emergency Rescue Service is the "Markab", with its 234 m booms for collecting oil from the surface of the water.

Here's a thought…

«At present time the Government is not ready to provide enough level of equipment for oil spills liquidation and constant emergency service in the sea » - said Vasily Korenev, chief of The Federal Government Unitary Enterprise Murmansk Basin Emergency Rescue Service on the opening of Barents Response Training Center (Murmansk, 2007).

Cleaning up oil spills of a regional level (500 – 5,000 tons) is one of the direct responsibilities of MBERS. It is also officially the owner of special ships like the "Agat," "Svetlomor-3," "Captain Martishkin" and other such kinds that are equipped with booms and skimmers. In reality at the moment, the Svetlomor support vessel is being operated in the Black Sea, while the "Captain Martishkin" is in the ocean. Therefore only boom provider "Markab" and the special technical service boats "VRB-4" and "VRB-10" are provodong emergency rescue services are ready in the Kolsky Bay, while the "Agat" and "Captain Nikolayev" are used in the Arctic. MBERS have also got a contract with Rosmorport Company for providing emergency rescue services in the White Sea.

In June 2007, the Statoil Company partnered up with the Norwegian Fishing and Coastal Economy Ministry gave Russia three oil spill recovery machines that were upgraded by Statoil. Earlier this equipment for cleaning up oil spills had belonged to the Norwegian Oilers Union NOFO.

4.5.2 The state Company "Ekospas-Murmansk"

The Ekospas-Murmansk company is a division of the all-Russia holding EKOSPAS. In addition to emergency response and preparedness, the company also develops plans for companies that have to deal with oil-spills and runs emergency rescue training service. The company's services are contracted at facilities like "First Murmansk Terminal," "Belokamenka," "The Murmansk Trading Port" and others, totaling 67 in all. "Ekospas-Murmansk" is currently equipped to clean up oil-spills ranging from 500 tons on land to 100 tons at sea.

An opinion…

The volume of the hydrocarbons shipped in Barents Sea (through Kola Harbour)[29]:
2005 – 7.9 tons
2006 – 9.3 tons
2010 – 21.4 tons

With "NordNorsk Beredskapssenter's" direct participation, the "Barents Sea Center for Education and Area Studies" was founded at the "Ekospas-Murmansk" base in Murmansk. The center's main objectives are preparing volunteers and the company's co-workers for hazardous oil-spills, developing new technology and testing oil-spill cleanup equipment.

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[28] *Yuri Ban'ko, "Bellona is anxious", Vecherniy Murmansk, 21.12.2006*

[29] V. I Bacharev, research director of the ecological foundation "Harmonic development" – Report written at the Barents Sea Centre for Training and Response. (Murmansk 2007)

For your information:

In Norway, the following specialist equipment is the property of the State: 43,000 m of booms, 130 skimmers, 8 monitoring vessels and 4 what kind of ?? vessels forming part of a system for protecting against accidental oil spills.

NOFO (the Norwegian Clean Seas Association For Operating Companies) has at its disposal 14 floating systems for collecting oil, each of which comprises two vessels, 400 m booms and a large skimmer. At the facilities and oil storage tanks on the shelf there are 200,000 m of booms and 50 skimmers. There are also public resources, including 70,000 m of booms and 300 skimmers.[30]

4.5.3 Learning How to Contain and Clean Up Oil-Spills

For your information:

The Barents Rescue Cooperation. The aim of the Barents Rescue Co-operation is to improve the possibilities for rescue services agencies to coordinate emergency and rescue issues across county and national/federal borders in the Barents Region. At the last Barents rescue exercise, held in 2005, Norway, Russia, Sweden, England and Finland participated. The scenario for Barents rescue 2005 was collision of a cruise ship with an oil tanker that resulted in fire and big oil leaks. Another cruise ship sank because of explosions. More than 4000 participants from the navy, military, health care, police, coastal administration, regional administrations and different NGOs took part in the exercise.

Exercises on how to contain and clean up oil-spills are held from one to two times a year by emergency rescue organizations and often attract a number of volunteers, like students and NGO members. The courses focus on structure, reporting and area studies interaction, as well as on how to use needed technology and equipment.

Exercises on cleaning up oil-spills can be regional, for example, with foreign emergency rescue organization participation, like The Norwegian Coast Guard, and by encompassing the proposed accident's large territory. They also can be local (site-targeted) to develop a scheme to react at the particular site of the oil and gas complex.

In June 2005 exercises were held in the Kola Harbour on Belokamenka tanker carrying out operations in response to a terrorist threat and on cleaning up a hazardous oil-spill in the gulf's waters.

The following scenario was done under thorough training that included participation from the Northern Naval Fleet, border guards, the Emergency Situations Ministry, The Federal Security Service and the police, with each department having carried out its assigned tasks. Today's scenario has a terrorist group high-jacking a ship from the Murmansk port and sailing it towards an oil terminal. The scenario was the following: The third security level is being announced on the "Belokamenka" tanker ship, each crew member takes his position and puts all rescue systems at full alert. Water craft leave the terminal and a FSB helicopter attempts to apprehend the terrorists by unloading a group of scuba divers into the water. Nonetheless, the ship tears into the tanker and explodes, thus causing a major fire. Environmental social services are standing ready on the shore to deal with the oil-spill that will make its way to the coastal line. A ship from the Murmansk Basin Emergency Rescue Service takes part in extinguishing the fire, which eventual is taken care of thanks to an overall effort. However, the oil-spill has run deep into the bay, thus calling into action measures for containing the oil from the surface of the water. The cleaning operations took place in two parts: in the water and on the shore. The Murmansk Basin Emergency Rescue Service's ship "Agat" set up booms trying to stop the spill from spreading. All in all ten boats from the Murmansk Basin Emergency Rescue Service took part in the operation.

In April 2007 exercises organized in accordance with the Murmansk Region government's direction took place in the Kola Bay. The classes were held in conjunction with the plan for 2007 of the Emergency Situations Ministry's North-West Regional Center.

The scenario was the following: at the "First Murmansk Terminal" base the driver of a car lost control and ran into oil reservoir number 84. The collision broke open a 0,9 square meter hole that oil started to poor out of, flowing beyond protection barrier limits and onto roads used for heavy transport that were temporarily set up while remodeling was taking place. Fire fighters covered the virtual flowing oil with foam to prevent a fire from breaking out just after having quickly arrived at the disaster area. The emergency rescue brigade from "First Murmansk Terminal" worked on containing the spill alongside the

[30] *Yuri Ban'ko, "Oil spills - a real threat", Vecherniy Murmansk, 20 January 2007*

fire fighters, and with help from heavy technology and manual labor, the hole was filled in the protection barrier. Moreover, the emergency rescue organization "Ekospas-Murmansk in a very short period of time set up booms in the water that would have prevented the spread of oil into the water. Co-workers from the Murmansk search and rescue division monitored the rescuers' work in order to help anyone that so happened to fall off the booms and into the water. The emergency situations commission was working back at the headquarters the whole time reacting to any problems that came up during the spill's containment. Representative from all emergency rescue levels and co-workers from the Emergency Situations Ministry's operations division toiled back at headquarters to ensure the containment's success. Moreover, the Emergency Situations Ministry's city division monitored the events since a disaster of such magnitude qualifies as being of a municipal level. After the oil-spill had been contained, the question of how long the clean up, which included volunteer students from Murmansk State Pedagogical University who were working under the World Wildlife Funds (WWF) patronage, was the main question mark. These students cleaned oil residue off rocks with their hand while members of the emergency rescue organization "Ekospas-Murmansk" showed off what equipment used for cleaning up oil could do in a special reservoir that was filled with it. Estimates had the oil-spill clean up taking up to around 24 hours to complete.

The main weakness is that classes are only held on cleaning up oil-spills of a local level. This therefore does not allow for carrying out emergency rescue organizations' interaction plans during an oil spill of regional or federal significance

Here's a thought…

"When we evaluated Barents Rescue it became clear that equipment should be improved and strengthened. Time is always a critical factor. We observed this when organizing the liquidation of oil both at sea and on land. These are equipment intensive operations where the logistics are decisive. It will always be possible to shorten the timeframe from when the equipment is in place to when the liquidation can start" - Tor Erik Sletner, director of the Coastal Administration and responsible for Barents rescue exercise.

"The Barents rescue exercise first and foremost confirmed the lack of equipment such as ships and booms" - Martin Norman, Greenpeace.

"Barents Rescue 2005 confirmed the need for an emergency preparedness and response plan for the Barents region, and this work will be prioritized in the future" - says Erik Selmer in the Finnmark county administration.

4.6. Assessing damage and fines

Comments by a legal expert:

The "Polluter pays" principle is defined in specific principles of environmental law. Article 16 of Federal Law No. 7 dated 10.01.2002 "regarding environmental protection" contains a list of categories of negative environmental influences. The procedure for calculating and levying payments in relation to these negative influences is regulated by the following:

- "Instructional guidelines for assessing and redressing the damage caused to the natural environment as a result of violations of environmental law", ratified by the national environmental protection committee of the Russian Federation on 06.09.1999.
- Order No. 81 of the national environmental protection committee of the Russian Federation dated 11.02.1998 "regarding approval of the method for calculating the extent of the damage resulting from the contamination of subterranean waters".
- Resolution No. 388 of the Government of the Russian Federation dated 21.05.2001 "regarding the approval of tariffs for calculating the amount of levy for damage caused to forests by violations of forestry legislation of the Russian Federation which is not included in the forest fund" and the like.

Ecological damage to hazardous production facilities is compensated for in the context of requirements set out in Article 15 of Federal Law No. 116 dated

Liability for damage inflicted on the natural environment is one of the main legal issues for vessels involved in accidents that occur when transporting and transferring oil, during bunkering operations or when delivering water containing oil.

21.07.1997 "regarding the industrial safety of hazardous production facilities".

This standard obliges the organisation which is operating the hazardous production facility to underwrite liability for damage caused to the life, health or property of other parties and the natural environment in the event of an accident at such a facility.

According to the Federal Law "regarding environmental protection" and other legislative acts of the Russian Federation, those found guilty of committing environmental offences, i.e. for inflicting damage on the natural environment, shall assume disciplinary, criminal and civil liability. Organisations, institutions and citizens which cause damage to the natural environment are obliged to pay full compensation.

Comments by a legal expert:

Article 42 of the Constitution of the Russian Federation introduces the concept of "an environmental offence". Environmental transgressions, i.e. unlawful acts which inflict damage on the natural environment and the health of individuals, entail calling administrative offences to account in accordance with the Code of the Russian Federation. Chapter 8 of this code is entitled "Administrative offences in the sphere of protection of the natural environment and the management of natural resources". Criminal responsibility for environmental offences is laid down by the Criminal Code of the Russian Federation which makes provision for measures of a criminal nature which are directed not just at the protection of the environment, but also at ensuring the rational utilisation of natural resources. Hence, for instance, Article 255 of the Criminal Code of the Russian Federation makes it a crime to violate rules of conservation and subsoil use.

Compensation for damage caused to the natural environment as a result of environmental offences is either effected on a voluntary basis, or by court order.

According to the law regarding environmental protection, all work involved in cleaning up the territory or expanse of water must be conducted by the polluting company. If the accident was committed by a large organisation, then large-scale work in eradicating the consequences of the accident shall be carried out using the company's own manpower and resources.

In accordance with Russian legislation, the financing of direct costs incurred for executing an oil spill liquidation plan is the responsibility of the company guilty of causing the accidental spillage, or the authorities of the Federation entity. In the latter instance, legislation provides for subsequent reimbursement of the charges incurred at the expense of the company guilty of causing the oil spill. In effect, if the guilty company is known, and admits its responsibility, it must cover all expenses immediately. If the guilty company is not known (because it left the scene of the accident) or denies its guilt – regional authorities will cover all the expenses. Later, however, when the guilty company is found, or its guilt is proven by an investigation– this company must reimburse the regional authorities by paying back all expenses.

Thus, in plans for eliminating accidental oil spills, environmental damages and resulting expenditures from clean-up operations involving oil within the area of responsibility of the terminals and oil producing organisations is reimbursed by the owners of these organisations. If the oil accident happens within an area that the terminal-owner, or the oil and gas company, is responsible for, then they must pay for the oil liquidation. Also, If the oil accident happens somewhere in the ocean or sea – within an area that doesn't belong to any company, then the company-owner of the guilty ship, or tanker, is responsible for covering all expenses.

Payment for transport of (dry-cargo) ships, tankers and tugboats to take part in clean-up operations is made immediately following completion of the operations from the contingency fund of the authority of the Federation entity.

If the legal entity responsible for causing the oil spill cannot be established, or is not creditworthy, or if the oil spill occurred as a result of natural forces, then compensation and clean-up operations fall under plans for eliminating accidental oil spills financed in accordance with Resolution No. 989 of the Government of the Russian Federation dated August 26, 1994 "regarding the procedure for financing measures concerned with the prevention and elimination of the consequences of emergency situations which occur at industrial enterprises, in construction and during transport", and Resolution No. 1113 dated November 5, 1995 "regarding a single State system for preventing and eliminating emergency situations" from contingency funds of the authority of the Federation entity, or the authorities of the territories in the area of responsibility where the accident has taken place. In the event of a shortfall in resources, the Federal reserve must be utilised.

For your information:

In Alaska (USA) in March 1989, the Exxon Valdez oil tanker was involved in an accident. 42 million litres of oil poured into the sea, contaminating 2,080 km of coastline. This pollution resulted in the deaths of 250,000 sea birds, 2,800 sea otters, 300 seals, 250 eagles, as many as 22 whales and a large number of salmon and herring. As compensation for the environmental damage, the Exxon oil company had to pay a fine amounting to USD 6.75 billion. The company is still contesting the size of the fine in court and has not paid a single cent so far.[31]

In practice, however, there are known cases when companies have tried to conceal the fact that an oil spill has occurred. Searching for the parties responsible in such a case is usually doomed to failure, since currents and winds make a determination of the actual source of the pollution unrealistic.

Here's a thought…

As a result of the simplest mathematical calculations, it turns out that fines for users of natural resources in Russia do not exceed 20% of the actual sum of the environmental damage.[32] In other European countries and the USA, the situation is different inasmuch as they have a developed environmental insurance system.[33]

However, even if the party responsible for the spill can be established, and the company is prepared to accept responsibility for the accident and makes every effort to clean up its consequences, one major problem still remains - payment for the environmental damage. Companies responsible for accidents have extensive opportunities to defer payment of environmental fines. The company is allowed to disagree about the level of compensation set by the State environmental services.

4.6.1 Environmental Insurance

Environmental insurance provides for protection of property interests of natural persons and organisations in the event of environmental risks using special insurance funds. In Russia, one can choose between voluntary and compulsory environmental insurance (Article 18 of Federal Law No. 7 dated 10.01.2002 "regarding environmental protection"). Presently, standard statute no. 04-04/72-6132 dated 03.12.1992 is in force for the voluntary environmental insurance procedure in Russia, as ratified by the Ministry of Natural Resources of the Russian Federation.

Environmental insurance is closely linked to environmental liability of the damage caused, but this has not yet been adequately developed in Russia. Environmental damage caused by a hazardous production facility is compensated for in the context of requirements elaborated in Article 15 of Federal Law No. 116 dated 21.07.1997 "regarding industrial safety in relation to hazardous production facilities". This norm obliges the organisation which operates the hazardous production facility to underwrite liability for the damage caused to the life, health or property of other parties and the natural environment in the event of an accident at such a facility.

Regulating the recompensing damage caused to the environment is applied in international relations in relation to pollution of the sea with oil and the damage caused by foreign states, companies and individuals. In accordance with Federal Law No. 26 dated 02.01.2000 "regarding affiliation of the Russian Federation to the 1992 protocol…" and Resolution No. 362 of the Government of the Russian Federation dated 10.05.2001 "regarding the procedure for implementing the provisions under the 1992

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[31] *Based on information from news agencies*
[32] *Natalya Logacheva, Novosty Yugri*
[33] *Official information portal of the municipal authorities in Khanty Mansisk: http://www.admhmansy.ru/news/full/?id=897*

protocol…", the Russian Federation is party to the 1992 international protocol. The recipient organisations of oil and petroleum products transported by sea are obliged to pay dues to an International fund which provides compensation for damage caused by oil pollution. In the event of a discharge or other oil leak from a vessel, compensation will be paid by the insurer within the framework of civil liability and, beyond that, from resources under the International fund. Claims for compensation of damage are presented to the Fund by the party affected by the oil pollution in the sea.

Here's a thought…

Marine insurance: Navigation in icy conditions is a cost factor when talking about premium cost and policy conditions. Analysts have concluded that the marine insurance industry is willing to underwrite risks in ice covered areas in the Arctic, but there is still too little international experience to determine how expensive that coverage is likely to be. In particular, more information is needed on environmental risks, Russian services to shipping, and Russian legislative development.
Ocean Futures, Focus North, No 8 (2006).

The Russian Federation is also a signatory state to the 1969 International Convention on Civil Liability for Oil Pollution Damage (CLC) and the 1971 International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage. The CLC protocols and fund conventions, which were adopted in 1992, make provisions, among other things, for higher compensation thresholds and a wider sphere of application as compared with the original variant.

The Convention on civil liability lays down the system of strict liability for oil tanker owners and introduces compulsory insurance liability. The Fund Convention establishes a system of additional compensation granted by the International Oil Spill Compensation Fund. This fund pays out compensation to victims of oil spills in Member States when compensation from the vessel owner and insurers is inadequate.

The principle used as a basis for the payment of compensation under both conventions takes us to the concept of "strict liability". This means that in order to receive rapid compensation, parties afflicted by oil spills are not obliged to prove the guilt of the vessel owner, captain, or tanker crew. The possibilities of circumventing liability are very limited. Therefore, the owner of the vessel will assume liability for losses connected with the spill in almost all cases which arise under normal circumstances.

According to the 1992 protocol to the Fund Convention, the maximum sum to be paid out in compensation is around USD 186 million. In reality, this is the maximum sum which would be paid out as compensation, for example, for cleaning the coastline in the event of a significant oil spill, since the fund makes up the shortfalls where the CLC Convention is insufficient to cover all legal claims.

The 1992 protocol to the CLC Convention contains a definition of the concept "damage brought about by pollution", but only expenditures which can be justified in terms of restoring the contaminated environment are included in the concept.

Projects aimed at rehabilitating the environment following an oil spill are therefore admissible for payment of compensation, but only on condition that the International Oil Spill Compensation Fund recognises their validity.

Any country which is a signatory state to the CLC Convention which has suffered from the effects of an oil spill may demand compensation. However, the fund's underwriters will only accept those claims which are covered by the definition of the concepts of "damage brought about by pollution" and "protective measures", which are stated in the CLC Convention. A claim is only admissible to the extent to which the plaintiff can demonstrate the actual nature of the sums lost.

As a rule, compensation is paid under the following situations:

- coastline and sea cleaning operations;
- damage to property (including the cost of cleaning and repair and, under certain circumstances, the cost of replacements);
- future losses, for instance, lost profit on the part of the owner or user of the property which is contaminated as a result of the spill (losses incurred by fishermen associated with lost earnings as a result of contaminated nets, etc.);
- purely financial losses (fishermen whose boats and nets were not contaminated but who were deprived of the opportunity to catch fish because of the polluted fishing area, and who were unable to catch fish in another area); and
- expenditures associated with justified measures for rehabilitating the environment.

4.7 The role of public organisations

In the autumn of 2004, Russian environmental organisations made joint demands on companies in the oil and gas sector, who are active on the territory of Russia, its Continental shelf, and in the exclusive economic zone.

For your information:

These "joint demands" are the result of the work of experts who took into consideration global experience in resolving environmental problems in the sphere of production, transportation and reprocessing of hydrocarbon raw materials. The working group was made up of representatives of the World Wide Fund for Nature (WWF) in Russia, the International Social Ecological Union, Greenpeace Russia, the Ecojuris Institute responsible for dealing with environmental and legal issues, "Crude Accountability" and the project entitled "Monitoring the Baltic pipeline system", which widely utilised the experience acquired by the "the Buryat Regional Association for the Baikal", "Baikal Environmental Wave", "Ecodefence" and many other non-governmental organisations in the Far East, the Caspian, the Baltic, Siberia, the North-West and the Arctic. When drawing up these "joint demands", the joint demands relating to oil and gas projects on Sakhalin, which were drawn up on the initiative of "Sakhalin Watch", were utilised.[34]

These demands[35] make particular mention of:

- presumption of a potential threat to the environment by company operations;
- prioritising precautionary and preventive measures rather than response measures;
- petroleum-free areas for habitats with high biological diversity;
- freedom of access to environmental information and its transparency;
- full compensation for damage;
- prevention of accidents and elimination of their consequences, including
- rehabilitation of ecosystems and fauna and flora;
- application of the best available technologies;
- environmentally safe utilisation of waste products.

These demands also include: conducting environmental impact assessment of projects and conducting expert examinations of the environment; procedures for determining damage and losses; transparency of information relating to the prevention and elimination of leaks and spills involving petroleum products; and company activities aimed at preventing and minimising impacts on the environment.

Here's a thought…

Since 1968, practically from the time oil was discovered in Prudhoe Bay in the state of Alaska (USA), social environmentalists have demanded safety guarantees regarding transport, such as the use of double-hulled tankers, export tugs and the establishment of specialised services for eliminating oil spills.[36] The demands of the population and environmentalists went unheeded for precisely 21 years, until the accident involving the Exxon Valdez oil tanker.

As a rule, governments enact stringent conservation measures, establish environmental insurance funds, and incorporate changes to the regulatory framework for oil and transport companies only after disaster has occurred in the form of a grounded oil tanker, a ruptured oil pipeline or a derailed train carrying petroleum products. Only when a country, or a region, must deal with the consequences of an oil disaster alone, does an oil company at fault stop being viewed as an economic donor, and the demands of social environmentalists are taken seriously.

In Russia today we are facing the conditions of weakened governmental control over nature protection activities. It is therefore an urgent issue to strengthen control over environmental protection through active participation of non-governmental ecological organisations and involvement of civil society in the decision-making process.

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[34] *www.greenpeace.org/russia/ru/press/reports/32518*
[35] *www.greenpeace.org/russia/ru/press/reports/32518*
[36] *A. Kireeva, "Commentary: oil conference in Murmansk", http://www.bellona.ru/russian_import_area/energy/renewable/40880?printerfriendly=yes*

Conclusions chapter four:

1. The requirements from the state to companies in terms of oil spill preparedness and response are only formally observed by companies, resulting in accidents associated with leaks and spills involving oil and petroleum products.
2. Risk scenarios for major accidents, natural disasters, and man-made emergencies show many similarities in the Barents Region. There are long distances between economic centres, sparsely populated rural communities, limited rescue personnel and equipment, and restricted means for transport and medical attention in the event of larger accidents.
3. Existing plans for eliminating accidental oil spills have a number of shortcomings, including:

   – inadequate forecasting of the scale of oil spills, and the dynamics of their development which are executed according to varying methods and presented in different forms in plans;

   – insufficient study of the methods and tactics for using vessels and technical facilities for eliminating oil spills, and lack of bases that ensure sufficiency and efficiency for each emergency situation examined;

   – disparity in reaction times (the time taken to convey manpower and materials, the deployment of means for eliminating the consequences of accidents and the localisation of the oil spill at the site of the accident), as laid down by a government resolution; and

   – absence of a special department to inspect the contaminated environment once operations concerned with eliminating accidental oil spills have been completed.
4. Official statistics of accidents and incidents relating to oil spills have shown an appreciable drop. This is linked to the concealment of facts concerning oil spills by operating companies.
5. Currently, in Northwest Russia and in the northern sea route there is basically no State system for monitoring the environment, for tracking accidental oil spills by aeroplane or satellite, or for tracking discharges of polluted ballast and bilge water.
6. The system of reimbursement for environmental damage is imperfect and allows companies to avoid paying compensation and carrying out rehabilitation work.
7. Generally speaking, the rescue services responsible for liquidation of accidental oil spills do not have adequate technical support or financing, resulting in ineffective response and unsuccessful clean-up.

APPENDIX IV-i "Consequences of a large oil spill in the Arctic"

In March 1989 the oil tanker Exxon Valdez grounded on Blight Reef in northern Prince William Sound in Alaska and caused the largest marine oil spill ever recorded. More than 42 million liters of crude oil were released into the blight and caused an ecological catastrophe of unprecedented magnitude, with a contaminated pristine shoreline of at least 1990 km and evident high wildlife mortality. After the oil spill, acute mortality of wildlife was observed, primarily affecting marine mammals and seabirds due to their routine contact with the sea surface. A few drops of oil punctuate the fur and feather isolation coats present in these animal groups, and may lead to hypothermia (freezing), but may also cause smothering, drowning or ingestion of toxic hydrocarbons. Between 1000 and 2800 sea otters, 302 harbour seals and more than 250000 seabirds were killed following the first days after the oil spill. Additionally, mass mortality of macroalgae and benthic invertebrates (bottom-dwelling animals such as shrimp) were also recorded.

Long-term consequences of the oil spill have been reported since 1989. In 2003, 14 years after the accident, Science published a review that summed the main ongoing sufferings from the oil spill (see Peterson et al. 2003). This review concluded that the "*oil persisted beyond a decade in surprising amounts and in toxic forms, was sufficiently bioavailable to induce chronic biological exposures, and had long-term impacts at the population level*". The chronic exposure enhanced mortality for years in fish embryos and larvae. Otters born after the oil spill experienced high mortality due to contaminated sediment contact and ingestion of contaminated bivalve prey. Many sea birds showed evidence of persistent exposure to residual oil after the spill, and some populations did not recover to pre-oil-spill population sizes.

Several studies documented cascades of events indirectly affecting individual survival or reproduction after sublethal exposures. Oil exposure resulted in lower growth rates, reproductive impairment and abnormal developments in fish and reduced incidence of breeding and smaller eggs in sea birds. Cascades of indirect effects were also present after the oil spill, where indirect interactions lengthened the recovery process on rocky shorelines for a decade or more. For example, an initial loss of cover habitat led to losses of important grazers and promoted blooms of unwanted ephemeral green algae and opportunistic barnacles.

The synthesis of 14 years of Exxon Valdez oil spill studies documents the contributions of delayed, chronic and indirect effects of petroleum contamination in the marine environment. With this knowledge, today's risk assessment models to predict ecological impacts of petroleum activity should not be limited to selective short-term effects of oil spills and tests of acute toxicity in laboratory tolerant taxa, but should also include long-term effects of an accident.

Main source: Peterson et al. (2003) Long-term ecosystem response to the Exxon Valdez oil spill. Review in Science 302: 2082-2086

APPENDIX IV-ii "List of waterborne vehicles and technical resources of co-ordinating organisations"

Waterborne vehicle	**Designation**			
Waterborne vehicles of the **State unitary enterprise "Murmansk basin emergency rescue service".** Based in the sea trade port in Murmansk.				
"Umka"	A military vessel. Trawling and oil collection using a trawl, booms and a skimmer. Oil is pumped from vessels involved in accidents.			
"Svetlomor"	The erection of booms, trawling of oil fields, receiving oil collected from other vessels. Oil is pumped from the vessel involved in the accident. Oil collection. Ensuring that small waterborne vehicles are operational.			
"Markab"	Rapid boom deployment.			
"Agat"	A military vessel. Trawling using booms and oil collection using a skimmer. Oil is pumped from the vessel involved in the accident.			
The "Mob-20" boat	1 off	Up to 9 crew. Maximum number of passengers: 22.	Tonnage - 3075 tonnes. Engine capacity -174 h.p.	Weight - 2400 kg Overall dimensions - 6250 x 2600 x 2280
The inflatable craft "Achilles"	2 off		Tonnage -1456 kg	Weight - 163 kg Overall dimensions - 4800 x 2100
Technical resources of the **State unitary enterprise "Murmansk basin emergency rescue service".** To be found on waterborne vehicles and at the depots of the Murmansk basin emergency rescue service.				
The "Ocean-2000" boom	Length - 1000 m (4 x 250)	1st container: Weight - 6400 kg Overall dimensions - 2800 x 2200 x 2200	2nd container: Weight - 6400 kg Overall dimensions - 2800 x 2250 x 2200	3rd container: Weight - 2300 kg Overall dimensions - 2800 x 2200 x 2200
The "Expandy" boom	Length - 243 m Weight - 2700 kg Overall dimensions - 1900 x 1900 x 1700			
The "Rosvip" hinged side catch basin	Mounted in a stationary manner on the vessel. Effective with wave heights of up to 3m Overall dimensions: 2250 x 1950 x 1700 Weight: 980 kg			
The "Framo" emergency system for pumping out petroleum products	2 off	1st container: Weight - 2200 kg Overall dimensions - 2400 x 1300 x 1850	2nd container: Weight - 1100 kg Overall dimensions - 2500 x 1750 x 1800	3rd container: Weight - 2000 kg Overall dimensions - 2800 x 2260 x 1800
The "Valosep W-2" skimmer	2 off	Output - 45 m^3/hour	Power generating unit: Weight - 1100 kg Overall dimensions - 1650 x 1100 x 1	Skimmer: Weight - 400 kg Overall dimensions - 2000 x 2000 x 1900
The "Desmi-250" skimmer	2 off	Output - 70 m^3/hour	Container: Weight - 3145 kg Overall dimensions - 2440 x 2900 x 2440	

The “Foxtail VAB 4-9” skimmer	1 off	Output - 30 m^3/hour	Container: Overall dimensions: 1500 x 800 x 1100 Weight: 585 kg	Power generating unit: Overall dimensions: 2250 x 1950 x 1700 Weight: 750 kg
The “Foxtail VAB 2-6” skimmer	1 off	Output - 9 m^3/hour	Container: Overall dimensions: 1500 x 800 x 1100 Weight: 475 kg	Power generating unit: Overall dimensions: 2100 x 1400 x 1400 Weight: 585 kg
The “Flugt” submerged electric-driven pump	2 off	Output - 100 m^3/hour	Weight: 48 kg Overall dimensions: 415 x 335 x 505	
The “Rosvip” washing complex	1 off	For washing the side boom on a load-transfer framework	Weight: 4850 kg Overall dimensions: 5200 x 2500 x 2400	
The “Roset” separation tank	1 off	With a pneumatic pump and power generating unit	Weight: 2700 kg Overall dimensions: 4700 x 2440 x 2400	
“Tokhatsu” outboard engines		Capacity - 40 h.p. Weight - 60 kg		

A list of waterborne vehicles and technical resources of **the “MASKO” private company**.
Based in the sea trade port in Murmansk.

Name of the waterborne vehicle	Tank volume, m^3
The waste oil disposal vessel “NMS-15”	18
The tanker “Damanskiy”	1080
The tanker “Dnepr”	1200
The tanker “Don”	1200

A list of waterborne vehicles and technical **resources available to the Northern Fleet**.
Chosen on the instructions of the Northern Fleet’s commanding officer.

Headquarters, fleet services	Name of the facilities, aircraft, technical resources	Quantity, units.	Owner	Base, stationing point
Small aircraft within the Northern fleet	Helicopter KA-27 (MI-8)	1	Military unit 87268	Severomorsk-1
Auxiliary fleet service within the Northern fleet	Tanker	1	Military unit 20533	Murmansk
	Tugboat	1	Military unit 31013	Murmansk
	MUS-558 pr. 1515	1	86 grso	Murmansk
	MUS-467 pr. 14630	1	1213 grso	Severomorsk
	Patrol frigate - 1412 “Ecopatrol” pr. 620	1	1213 grso	Severomorsk
Management of search and accident rescue work within the Northern fleet	Tugboat	1	Military unit 40658	Severomorsk
	Fire boat pr. 14611	1		
Marine engineering service within the Northern fleet	Engineering equipment (bulldozers, grading machines, excavating machinery, loading machines and the like), including field substitutes	by order	Area divisions of the marine engineering service, garrison units and offices	
Marine engineering service within the Northern fleet	Floating booms:			
	“Rapid” fibreglass;	1	Marine engineering service, military unit number 10672	Gadzhievo
	Vinyl BZ-750;	60	Central storage depot of the marine engineering service	Murmansk

	Vinyl BZ-1000;	by order	Storage depot of the marine engineering service	Murmansk
Logistics section within the Northern fleet	KAMAZ (on board) vehicle	4	Military unit 20233	Murmansk
	Truck-mounted cantilever crane	1		
76th search and rescue service and mobilisation department	Fire extinguishing tank lorry	1	Military fire protection and rescue work unit number 7	Severomorsk
		1	Military fire protection and rescue work unit number 265	Severomorsk
		1	Military fire protection and rescue work unit number 233	Murmansk
		1	Military fire protection and rescue work unit number 202	Shchuk-Ozero
		1	Military fire protection and rescue work unit number 704	Murmansk
		1	Military fire protection and rescue work unit number 1	Polyarniy
		1	Military fire protection and rescue work unit number 462	Skalistiy
		1	Military fire protection and rescue work unit number 4	Vidyaevo
		1	Military fire protection and rescue work unit number 452	Zaozersk
		1	Military fire protection and rescue work unit number 10	Ostrovnoy
		1	Military fire protection and rescue work unit number 6129	Severodvinsk

A list of waterborne **vehicles from other organisations**

Designation	Owner	Quantity, units	Purpose
Tug haulage vessel ("oil and gas model")	The "Arcticmorneftegazrazvedka" Federal State unitary enterprise	4	The supply of technical resources under the plan for eliminating oil spills, work as part of an order.
Seagoing tug	Military unit 49394	2	Work as part of an order.
Salvage tug	Management of search and accident rescue work within the Northern fleet	1	Carrying out rescue work at sea.
Medium-sized fishing trawler with an open slipway or a large, refrigerated fishing trawler with an open slipway	"Tral'flot"	2	Boom deployment, work as part of an order.

Transport (dry-cargo) vessel	MSC	NSC -2 MSC-1 (the Murmansk basin emergency rescue service on request)	The supply of technical resources under the plan for eliminating oil spills to the site of the accident.
Waste oil disposal vessel	“Murmansk sea fishing port” (a Federal State unitary enterprise)	2	Work as part of an order to collect oil. A 500 m boom is available.
Waste oil disposal vessel	The “Belomorskaya neftebaza” private company	1	Work as part of an order to collect oil. A 1000 m boom is available
Berthing tug	The “Rosneft-Murmansknefteprodukt” public company	2	Boom deployment, work as part of an order. 1 tonne of biosorbent material is available.
Tugboat	Murmansk sea trade port, Arkhangelsk sea trade port	2	Work as part of an order to collect oil.

APPENDIX IV-iii "Analysis of legislation on accident issue"

Article 42 of the Russian Constitution introduces the notion of "environmental offence." Thus the basis is formed for the development of a cross-industry system of environmental responsibility. Environmental crimes, i.e. such violations of the law that entail harm to the environment or human health, are punishable as administrative violations in accordance with the Russian Federation's Code of Administrative Offences and its Article 8, entitled "Administrative Offences against Environmental Protection and Use of Natural Resources." Environmental felonies, as a matter of criminal liability, are punishable under the Russian Federation's Criminal Code, which sanctions measures of the criminal law applicable to ensuring the rational use of natural resources as well as the protection of the environment. For instance, Article 255 of the Criminal Code determines criminal liability for violating the rules of protection and use of subsoil resources.

Federal Law No. 7-FZ[1] "On the Protection of the Environment," of January 10, 2002, provides for a citizen's right to initiate legal action in court to seek damages for harm inflicted on the environment. The provisions of the Civil Code of the Russian Federation also have significance when seeking compensatory damages for environmental harm. For instance, Article 1058 of the Civil Code is applied with cases filed to recover damages inflicted on a person's health.

Simultaneously with ruling on compensatory damages for environmental harm, the court is entitled to compel the respondent party to halt or cease altogether those activities of the respondent which have been the focus of the litigation.

The specific principles of environmental law include the so-called "polluter pays" principle. Article 16 of Federal Law No. 7-FZ "On the Protection of the Environment," of January 10, 2002, includes a list of types of actions carrying negative impact on the environment. The order of assessing and recovering penalties for negative environmental impact is regulated by the following:

- "Guidelines for the assessment and recovery of harm inflicted on the environment as a result of environmental offences," approved by the State Committee for Ecology of the Russian Federation on June 9, 1999.

- Decree No. 81 of February 11, 1998, "On the adoption of methods of assessment of damages from the pollution of ground waters," of the State Committee for Ecology of the Russian Federation.

- Resolution No. 388 of May 21, 2001, "On the adoption of rates used for the calculation of penalties for damages inflicted on the forestry fund or woods not included into the forestry fund by violations against the forestry legislation of the Russian Federation," of the Government of the Russian Federation.

Levying environmental damage fines on a hazardous industrial site is done in the context of the requirements of Article 15 of Federal Law No. 116-FZ "On the industrial safety of hazardous production facilities," of July 21, 1997. This regulation prescribes that any organisation operating a hazardous industrial site carry liability insurance to be able to compensate for inflicting damage on human life and health or personal property and the environment should an accident occur at such a site. The legal definition of "accident" to be applied for the purposes of this law is provided for in Article 1 of the law.

Environmental liability insurance constitutes an agreement to protect the property interests of physical persons and organisations by covering environmental risks with a special insurance fund. Russia practises both voluntary and obligatory environmental insurance (Article 18 of Federal Law No. 7-FZ "On the Protection of the Environment," of January 10, 2002). At present, Standard Provisions No. 04-04/72-6132 that regulate the practice of voluntary

[1] Translator's Note: Here and elsewhere in the text, Cyrillic letters standing as part of document numbers in the original text have been rendered into English using common rules of Russian-to-English transliteration.

environmental insurance are in force in the Russian Federation, as approved by the Ministry of Natural Resources of the Russian Federation on December 3, 1992.

The practice of environmental insurance is closely linked with environmental liability for incurred damages, but it has had little development in Russia.

In international relations pertaining to oil pollution at sea or damages inflicted on other states, citizens or legal entities, a different course of action is used to seek environmental compensation. In accordance with Federal Law No. 26-FZ "On Joining the 1991 Protocol,.." of January 2, 2000, and Resolution No. 362 by the Government of the Russian Federation "On the order of realisation of the provisions of the 1992 protocol,.." of May 10, 2001, the Russian Federation is a party to the International Protocol of 1992. The organisations receiving oil and oil products shipped by sea are obligated to pay fees to the International Oil Pollution Compensation Funds (IOPC). In case of an oil spill or other escape of oil from a ship, compensation will be paid out by the underwriter within the limits of civil liability, with the IOPC paying remaining damages beyond such limits. Claims for compensation of damages may be made against the IOPC funds by anyone who has suffered damages from an oil spill at sea.

ACCIDENTS

The legal regulation of situations occurring as consequences of an accident or other disaster which have resulted, or may result, in the loss of human life, damage to human health and harm to the environment, significant loss of property and destruction of the living environment, is determined by Federal Law No. 68-FZ "On the protection of the population and territories from natural and technogenic emergencies," of December 21, 1994. The purposes of this law are as follows:

- prevention and containment of emergencies;
- limitation of damages and losses resulting from emergencies;
- liquidation measures;
- division of authority with regard to the protection of the population and territories from emergencies among the federal executive bodies, executive bodies of the constituent entities of the Russian Federation, local municipal bodies, and related organisations.

Emergencies are classified in accordance with Resolution No. 1094 by the Government of the Russian Federation "On the classification of natural and technogenic emergencies," of September 13, 1996, and fall into several categories depending on the number of people affected, number of people with deteriorated living conditions, extent of material damage, and size of the polluted area.

In accordance with the mentioned criteria, emergencies are classified as site-level, local, territorial, regional, federal, and cross-border.

Citizens' constitutional right to truthful information about the state of the environment under conditions of an emergency is detailed in Article 6 of the law. Information pertinent to the protection of the population and territories must be open to public access. Article 18, which determines the rights of the citizens of the Russian Federation with regard to the protection from emergency situations, also provides for the right to be informed about potential risks and essential safety measures. In other words, by granting its citizens the "passive" right to be informed, the state assumes the obligation to make information available to its citizens on its own initiative.

Resolution No. 613 of the Government of the Russian Federation "On first-response measures for the prevention and liquidation of accidental spills of oil and oil products," of August 21, 2000, determines the main principles applied when designing plans aimed at the prevention and liquidation of accidental spills of oil and oil products. Oil spills are classified as emergencies and further fall into several categories depending on the extent of the spill and the size of the area affected by it.

Decree No. 156 of the Ministry of Natural Resources of the Russian Federation "On the adoption of instructions for the determination of the lower limit of a spill of oil or oil products in order to classify it as an emergency situation," of March 3, 2003, determines the lower levels of various oil and oil product spill scenarios in order that the spill could be considered an emergency situation. For the seas of the Arctic Ocean, the lower limit for an oil spill is 0.5 tonnes.

Among other measures to prevent and clean up an oil spill, special significance is given to measures undertaken by the bodies of state authority, local municipal bodies, and organisations that explore and develop subsoil resources and produce, refine, transport, and store oil and oil products. Such measures are provided for in Resolution No. 240 of the Government of the Russian Federation "On the order of organisation of measures to prevent and clean up spills of oil and oil products on the territory of the Russian Federation," of April 15, 2002. A series of mandatory actions has been established to manage the pollution, and the measures undertaken are deemed fully implemented when the following steps have been fulfilled: stopping the oil spill; collecting the spilled oil and oil products to a highest attainable standard as allowed by the technical specifications of the special technologies in use; accommodating the collected oil and oil products for further disposition provided that a secondary pollution of production sites and of the elements of the environment has been ruled out.

Further works implemented to manage the consequences of a spill of oil or oil products and to rehabilitate the polluted areas or bodies of water are carried out in accordance with projects or programmes developed for the reclamation of lands and remediation of bodies of water after such projects have been approved under a state environmental risk assessment procedure.

The above-mentioned resolution by the Government of the Russian Federation determines the following response timeframes to contain the spread of an oil spill: four hours after an oil spill into a body of water was reported and six hours after an oil spill was discovered to have occurred on soil or after information about such a spill was reported to relevant authorities.