

## **RUSSIAN LEGISLATION AND OIL SPILL RESPONSE**

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**RUSSIA HAS NOTICEABLY INCREASED OIL TRANSPORTATION BY SEA AND STARTED OIL PRODUCTION AT CONTINENTAL SHELF. IT IS FOLLOWED BY INTEREST TO RUSSIAN LEGISLATION CONCERNED OIL SPILL PREPAREDNESS AND POLICY. THE PAPER PRESENTS A SHORT DESCRIPTION AND ANALYSES OF REQUIREMENTS TO CONTINGENCY PLANNING, ROLE OF DIFFERENT AUTHORITIES AND INSTITUTIONS INVOLVED IN OIL SPILL RESPONSE, STRUCTURE OF MANAGEMENT SYSTEM AND OIL SPILL RESPONSE POLICY. THE GOVERNMENTAL DECREES HAVE BEEN PRESCRIBED THAT ANY OIL HANDLE AND PRODUCTION COMPANY SHALL ENSURE ADEQUATE RESPONSE TO OIL SPILLS INCLUDING THE WORST CASE AND HAS AN OIL SPILL CONTINGENCY PLAN. THE PLAN SHALL CONTAIN DESCRIPTION OF MANAGEMENT BODY, MEMBER'S RIGHTS AND DUTIES, LIST OF EQUIPMENT AND LOCATION OF IT, PROCEDURES OF NOTIFICATION, COMMUNICATION, AND ETC. THE STATE MARINE POLLUTION CONTROL, SALVAGE AND RESCUE ADMINISTRATION IS RESPONSIBLE FOR COMBATING WITH OIL SPILLS AT SEA. THE MINISTRY OF CIVIL DEFENSE, EMERGENCIES AND ELIMINATION OF CONSEQUENCES OF NATURAL DISASTERS (EMERCOM) CO-ORDINATES ACTIVITIES OF DIFFERENT ORGANIZATIONS INVOLVED IN OIL SPILL COMBATING OPERATIONS (E.G. THE NAVY, FRONTIER GUARD, LOCAL AUTHORITIES, ETC) AND IN PARTICULAR, TO TAKE CHARGE OF LAND-BASED CLEAN UP OF OIL POLLUTION.OIL SPILL RESPONSE POLICY AT SEA IS ORIENTATED ON RECOVERING SPILLED OIL BY MECHANICAL MEANS. CHEMICALS SHOULD BE USED WITH OPTIMIZED EFFICIENCY AND ACCEPTABLE EFFECTS TO THE MARINE ENVIRONMENT. RUSSIAN ENVIRONMENT PROTECTION AUTHORITIES ARE CONSIDERING NOW NEW OIL SPILL DISPERSANT APPLICATION REGULATIONS BASED ON NEBA PROCEDURE. ANALYSE OF LEGISLATION SHOWS A NEED OF LAW THAT ELIMINATE OVERLAPPING OF RESPONSIBILITIES DIFFERENT FEDERAL AUTHORITIES, CLEARLY DEFINE AND ESTABLISH PROCEDURES ENSURING PREPAREDNESS TO OIL SPILLS.**

### **PRESENT LEGISLATIVE AND REGULATORY FRAMEWORK.**

A number of national laws, governmental decrees and regulations govern the framework for oil spill preparedness and response in Russia. The overall framework is given in the laws "Environment Protection" and "Protection of population and territories in case of natural and technogenic emergency situations". The laws stipulate among various important issues requirements and provisions for an application of State Environmental Expertise procedures, certification of hazard objects and define the projects and activities, which should undergo these procedures.

In accordance with Ordinance of the Government of the Russian Federation, dated December 30, 2003, No. 794 “On Unified Emergency Prevention and Response System” corresponding Commissions of Emergency Situations (hereinafter – CES), depending on emergency situation level, shall exercise direct control of oil spill response (OSR) operations on land territories and inland water bodies and coordination of management agencies and resources involved in such OSR.

There are two Government Ordinances directly linked with oil spill preparedness and response:

- #613, adopted on 21.08.2000 “About urgent measures for prevention and combating oil and oil products spills” and
- #240 adopted on 15.04.2002 “On Procedure for Implementation of Measures to Prevent and Response to Oil and Oil Product Spills at the Territory of the Russian Federation”,

They include the following requirements to an oil spill contingency plans, preparedness and response at sea:

- Any oil storage, handle, production company must ensure preparedness to probable oil spills and develop oil spill contingency plan for their own facilities (oil terminals, oil platforms, oil storages, pipelines etc.).
- Ministry of Transport is responsible for development of regional plans (Baltic, Black, Caspian, Far East and Arctic seas) and federal oil spill contingency plan at sea.
- The oil spill contingency plans should be developed based on results of risk assessment and taking into account worst cases: oil tanker – capacities of 2 cargo tanks; oil platform, terminal – 1500 tons of oil, pipelines – 25% of pumping rate during 6 hours in case of rupture of pipeline and 2% of pumping rate during 14 days in case of puncture of it.
- The plan should be included the following information:
  - description of object, region,
  - list of oil spill response equipment and forces (OSREF) needed to combat with probable oil spills, their type and amount, owners, satisfaction of adequacy,
  - procedures of cooperation of involved organisations,
  - management, communication and information,
  - procedures of stand by ensuring,
  - hidrometeorological conditions of region,
  - safety of people and wide nature,
  - logistic,
  - strategy of initial, second and final response operations,
  - all necessary support information included as annexes to the plan.

During evaluation of OSREF adequacy it should be taken into account:

- size of oil spill,
- properties of oil,
- hidrometeorological conditions,

- priority protected zones,
- waste disposal,
- time delivery of OSREF to the place of incident,
- time of oil spill containment should not be more than 4 hours.

Demands and obligations for contingency planning and response measures on specific facilities as ports, oil terminals and offshore installations have incorporated the concept of tiered response. The “tiered response” approach for oil spill combating preparedness at sea is accepted in Russia and provides a convenient categorization of response levels and a practical basis for oil spills contingency planning. Tiered response at sea recognizes three levels:

- Tier 1(local) –preparedness and response within the capabilities of object (oil terminal, port) to oil spills less than 500 tons.
- Tier 2 (regional) - preparedness and response within the capabilities of region and if necessary with assistance of neighboring countries to oil spills more than 500 tons but less than 5000 tons.
- Tier 3(federal) – preparedness and response within the capabilities of the Federation and with assistance of neighboring countries to oil spills more than 5000 tons.

Besides mentioned laws and Government Ordinances a number of other laws and regulations have included provisions and obligations concerning notification procedures, monitoring of environment quality, reimbursement of damages and expenses and arising from existing national system of response in emergency situations.

#### DISCUSSION OF PRESENT LEGISLATIVE AND REGULATORY FRAMEWORK.

Laws and regulations arising both from the time of the former USSR and the existing Russian Federation constitute the present legislative and regulatory framework for offshore spill preparedness and response. The following points have been identified as issues, which could be considered further for improvement of the present legislative and regulatory basis for marine spill preparedness and response:

- An extensive number of laws and regulations are today governing regulations for marine spill response. A comprehensive law as an Oil Pollution Act could improve the situation by joining the various laws and regulations in an updated regulatory framework.
- Today no guidelines do exist for preparation of contingency plans for spill response. Development of specific guidelines and requirements for contingency planning could improve the basis for and the quality of contingency plans prepared on local and regional level.

#### AUTHORITIES AND INSTITUTIONS INVOLVED IN OIL SPILL RESPONSE AT SEA

The administration of the Russian Federation is organized in a number of administrative levels ranging from the federal level to the smallest entity on local level - the municipal level. Besides this division of the administration mainly related to geographical coverage,

the federal level is also directly represented on the local level through specialized institutions. The following administrative levels have been recognized:

- **Federal level.** Ministerial level mainly involved in policy formulation, coordination and central administration including responsibility for international relations.
- **Regional level.** An administrative entity constituted by a number of territorial entities (Oblasts)
- **Territorial level - Administration of Subject Federation** The territorial administration on Oblast level.
- **City/municipal level** Local administrative level.

A number of state institutions on federal and territorial (regional) level are involved in the set-up for marine spill preparedness and response at sea. In the following, a comprehensive description is given for the various involved institutions:

#### THE STATE MARINE POLLUTION CONTROL, SALVAGE AND RESCUE ADMINISTRATION (MPCSA)

The USSR Council of Ministers Ordinance no. 48 (1991) on measures for improvement of safety at sea, improvement of rescue capacities and organization of oil, oil products and other chemical substances sea pollution control, - established the State Marine Pollution Control Salvage & Rescue Administration of the USSR (now the Russian Federation) with overall responsibilities for organization and operation of preparedness and response structures for handling of offshore spill incidents.

The OPRC Convention was signed by the former USSR but has not yet been ratified by the Russian Federation, although the documents of ratification are under preparation. Nevertheless, the Russian Federation accepts the obligations of OPRC and is applying the Convention in practice to the best of its ability. In accordance with the OPRC, the Russian Federation is obliged to designate "competent authorities" for different purposes. The "competent national authority" for the national system of oil spill response is the Ministry of Transport and communication. Within the Ministry, the MPCSA is the entity charged with exercising this responsibility.

The MPCSA is responsible for establishment, organization and operation of the marine rescue and salvage services including Marine Rescue Coordination Centres (MRCC). These centres serves as the focal point for communication also during marine spill incidents. Any oil spill, which enters the marine environment, should be reported immediately to the nearest MRCC. If the oil spill is beyond the capacity of the local or regional resources to deal with, it will be the responsibility of MPCSA and Ministry of Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM) to mobilize the Russian Federation's Tier 2 and 3 capabilities.

The MPCSA is also overall responsible for management of Basin (Regional) Salvage and Towage Company (BASU). BASU (Baltic, Murmansk, Fareast, Sakhalin, Black and Caspian seas) are a state owned companies providing salvage and towage services when needed in appropriate marine basin. The companies are the operational arm of the regional spill response set-up and are the owner of dedicated vessels and spill response equipment.

MPCSA is further responsible for taking decisions, including requests for assistance from outside the country, if an oil spill affects or threatens Russian territory, which includes Russia's territorial waters. In the case matters related to Finland, Norway and USA requests for assistance would be made in accordance with the terms of the bilateral agreement between Finland, Norway, USA and the Russian Federation.

The MPCSA together with Administration of Federation Subject (Administration of Oblasts) is responsible for the approval of Tier Two (regional) contingency plans covering the responsibility zones of the Russian Federation. The MPCSA also together with Ministry of Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM) and Ministry of Nature Resources is responsible for approval of Federal contingency plan.

#### MINISTRY OF CIVIL DEFENSE, EMERGENCIES AND ELIMINATION OF CONSEQUENCES OF NATURAL DISASTERS (EMERCOM)

The responsibilities of EMERCOM are to co-ordinate the different organizations (emergency and salvage services (agencies)) involved in oil spill combating operations (e.g. the navy, frontier guard, air forces, local authorities, etc) and in particular, to take charge of land-based clean up of oil pollution.

EMERCOM has established an Inter-Agency Commission at the federal level on emergency situations. This Commission meets on a regular basis and is also convened in the event of disasters, including major oil spills. (Tier 3 oil spills). EMERCOM is also overall responsible for management of Regional Coordination Centers (Northwest, South, Fareast). Regional EMERCOM Centers carry out coordination under territorial (subject of federation) departments in case of Tier 2 oil spills. Territorial EMERCOM bodies are responsible for coordination of Tier One response to an oil spill.

#### MINISTRY OF NATURE RESOURCES (MNR)

The main tasks of the MNR include: the State policy on environmental protection; ecological safety; biodiversity conservation; the State environmental control and expertise; the management of the State reserves and specially protected areas; interaction with public environmental organizations; public awareness and environmental education; and international co-operation in this field. The MNR is in close contact and coordinates with other ministries, inter alia, EMERCOM, Ministry of Transport and Communication, Ministry of Agriculture. The MNR, and in particular the Division for State Ecological Expertise, has important decision making functions (e.g. in licensing projects with a major environmental impact) and an important role in policy formulation and development, including the environmental protection of the coastline. All projects involving oil are classified as category A and require the approval of the Division of State Ecological Expertise. This includes the oil spill contingency plans; the State Ecological Expertise, taking account of advice by its corps of experts and the competent bodies, can identify weaknesses in such plans and make recommendations for improvements.

#### THE NAVY AND BOARD GUARD OF THE RUSSIAN FEDERATION

The Navy and Board Guard of the Russian Federation have certain dedicated means and equipment for offshore spill response. The navy can as such provide potential assistance

for offshore spill response in case the spill incident extend the response capability of the immediate nominated means. Board Guard vessels can be used for oil film surveillance.

#### ADMINISTRATION OF SUBJECT FEDERATION (ADMINISTRATION OF OBLAST)

The Deputy Governors of Administration of Subject Federation will be the Chairman of Territorial Commission on Emergency Situations. The Oblast Commissions meet once a year to discuss the different problems, e.g. fires, oil spills, floods, etc. The administration has established an Environmental Safety Department. One of the functions of this Environmental Safety Department of territorial administration is to identify the guilty party in a pollution incident and to undertake mobilization measures for shoreline clean up and pollution incidents on land. The Head of Department will be a member of the local Emergency Commission and will assist the shoreline clean-up operation taking into account the Commission's opinion and advice.

#### STATE SPECIAL MARITIME INSPECTORATES (SMI) MINISTRY OF NATURE RESOURCES

SMI is responsible for carrying out the State ecological control during oil spill combating operations and for giving permission for the use of dispersants and other non-mechanical technologies.

It is the responsibility of the State Special Maritime Inspectorate (SMI) to make estimates of the damages caused by oil pollution incidents at sea. The SMI undertakes field measurements and then calculates the environmental damage costs according to the formula prescribed by Government Decree. If the polluter collects the spilled oil, the amount of fine is reduced. The fines are paid into state budget. The Inspectorate will also be responsible for reimbursement and claims.

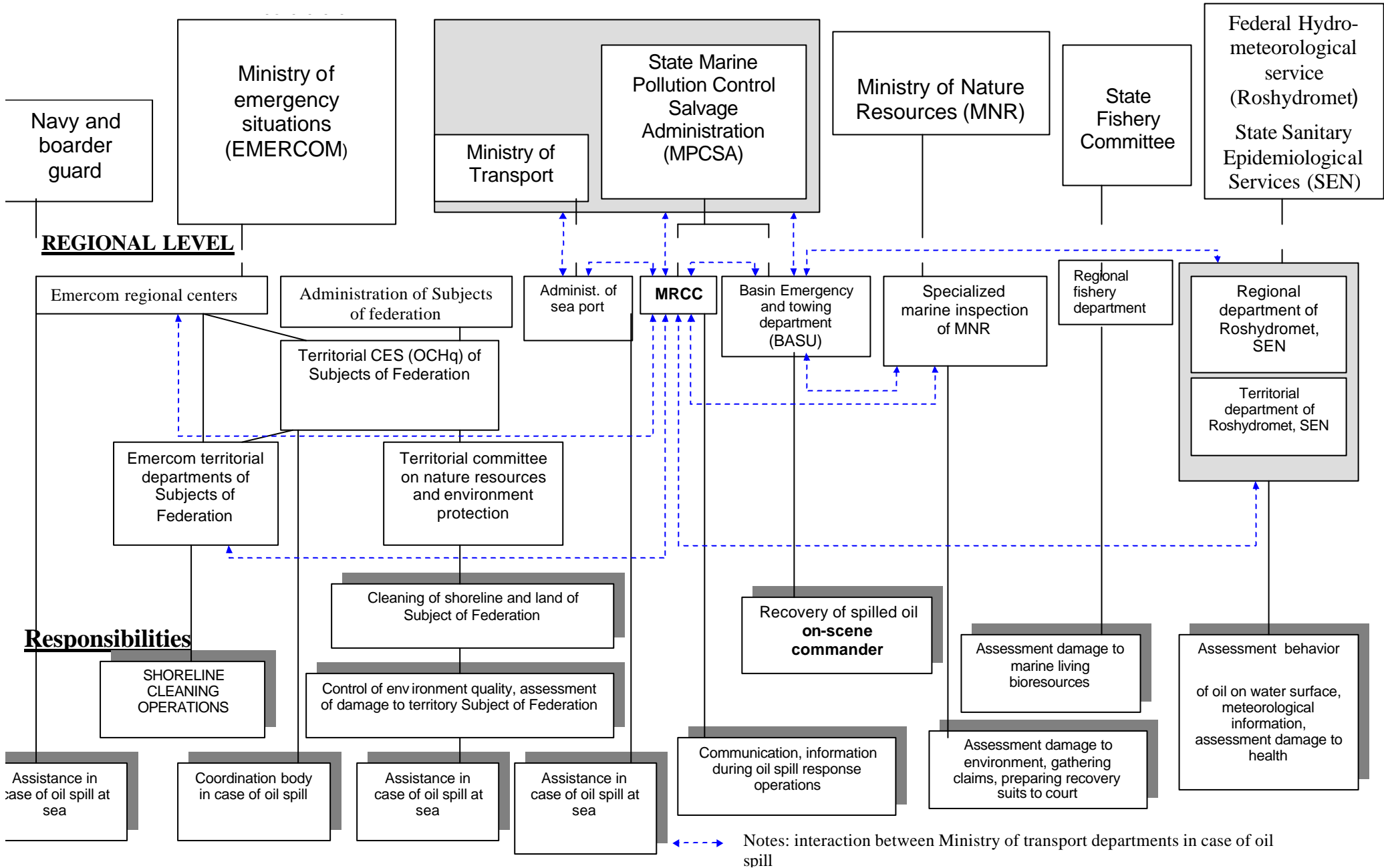
#### OTHER STATE SPECIALIZED INSTITUTIONS

A number of state institutions on federal level also represented by local institutions on territorial level will be involved in case a major spill incident occurs.

- State Committee of Fishery of the Russian Federation (moved in Ministry of Agriculture in 2004) represented by Territorial Fishery Inspectorates. Main tasks related to spill marine incidents are marine bioresources control and assessment damage to them.
- State Hydrometeorology Service represents by Territorial Centers of Hydrometeorology. Main tasks related to marine spill incidents are weather, current and oil drift forecasting.
- State Sanitary Epidemiological Services represented by Territorial Centers of State Sanitary Epidemiological Services. Main tasks related to marine spill incidents are public health aspects and impact assessment.

The involvement of various federal and territorial authorities as Ministries, State Committees and various supporting institutions in The Plan as described above as well as their mutual relationship in relation to The Plan are visualized in the Organogram shown below (Fig. 1).

**Federal level**



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Figure 1 divides the various bodies into a federal level and a territorial level. In addition to the description and in order to clarify the mutual relationship with regard to areas of responsibility particular in relation to operational activities to oil pollution, Fig. 1 also indicates the respective roles for the various bodies on territorial level of the operational response.

In addition hereto, Fig. 1 in its vertical columns visualizes the lines of mutual relationship and command between the federal authorities and their executive bodies on territorial level.

## DISCUSSION OF PRESENT AUTHORITIES AND INSTITUTIONS

A number of overlapping responsibilities have been identified between various involved authorities most likely caused by overlapping laws and regulations from the former time of USSR and the present Russian Federation. A clear allocation and division of responsibilities could improve the transparency and efficiency, including cost-efficiency of the overall preparedness and response set-up.

## MANAGEMENT OF OIL SPILLS RESPONSE OPERATIONS.

Given the specific features of the OSR organization, the OSR management system must meet the following basic requirements promptness, stability, integrity, efficiency and authenticity of submitted information.

Promptness, stability and integrity management system shall be ensured by:

- locating the management body as close to emergency sites as possible in the event of actual or imminent oil spill;
- setting up reserve (mobile) control stations and backup communication channels in advance;
- providing control stations with modern communication and warning systems;
- interfacing employed communication and warning systems of all OSR parties.

Management efficiency is measured by promptness and expediency of measures to contain and respond to oil spills, adequate and timely logistic and other support of OSR resources and equipment.

In accordance with Ordinance of the Government of the Russian Federation, dated December 30, 2003, No. 794 "On Unified Emergency Prevention and Response System" and Ordinance of the Government of the Russian Federation, dated August 21, 2002, No. 613 "On Urgent Measures for Prevention and Response to Accidental Oil and Oil Product Spills", corresponding Commissions of Emergency Situations (hereinafter – CES), depending on oil spill levels, shall exercise direct control of OSR operations on land territories and inland water bodies and coordination of management agencies and resources involved in such OSR.

In accordance with Ordinance of the Government of the Russian Federation, dated April 15, 2002, No. 240 "On Procedure for Implementation of Measures to Prevent and Response to Oil and Oil Product Spills at the Territory of the Russian Federation", Operations Control Headquarters (hereinafter – OCHq), depending on oil spill levels, shall

exercise direct control of offshore OSR operations and coordination of management agencies and resources involved in such OSR, in coordination with the corresponding CES. Coordination of the OCHq activities with the CES shall be exercised by the authorized representative of the territorial or regional agency of the EMERCOM, a member of the CES (OCHq).

The CES (OCHq) shall be a permanent agency formed in the territory, region, and the business involved in oil operations (exploration, production, treatment, offloading, transportation), acting in accordance with the relevant regulations developed and approved by corresponding federal executive authorities, regional and local authorities of the Russian Federation, and businesses. If the business involved in oil operations has several facilities, the CES (OCHq) shall be formed at each of the facilities and their interaction shall be coordinated by the CES (OCHq) of the business. The general structure of CES (OCHq) is given on Fig.2. Head of company is at head of the CES (OCHq). Territorial (regional) CES (OCHq) is headed by vice governor of subject of federation

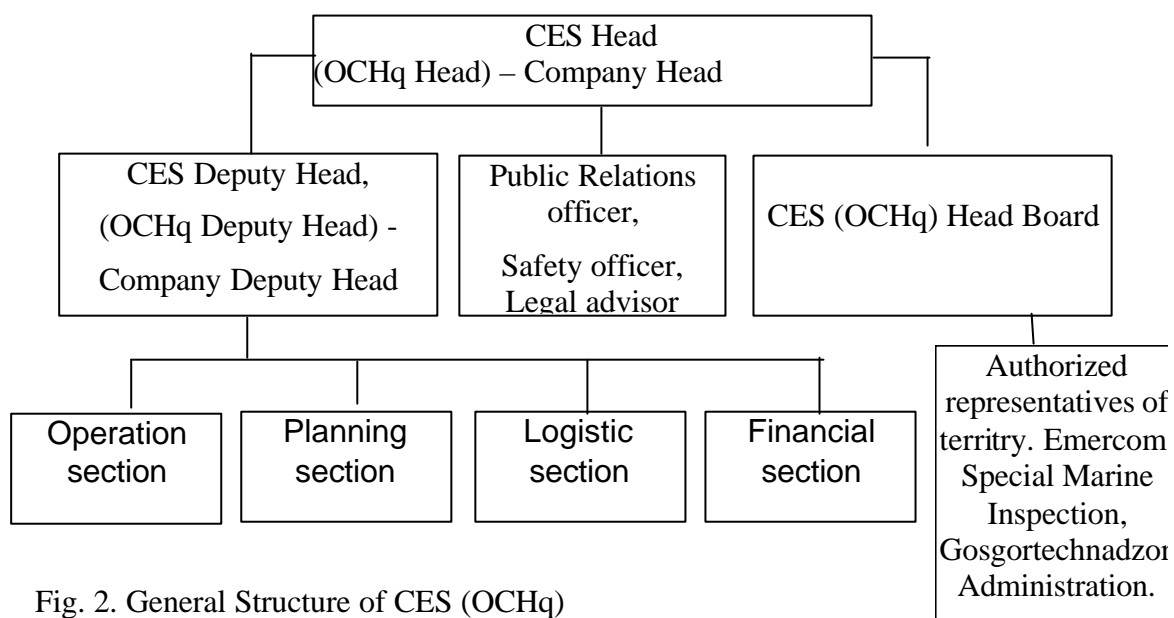


Fig. 2. General Structure of CES (OCHq)

CES (OCHq) shall:

- collect and analyze information about spill,
- prepare proposals on strategy and tactic of OSR,
- perform notification,
- assess the need for involving forces, arrange their delivery to the place of incident, appoint incident commander,
- develop and approve the incident action plans,
- prepare the information for the authorities about the spill, taken and planned measures,
- take decisions about beginning, temporary cessation, resumption and termination of OSC operations,
- ensure control and execution of announced pattern of top priority actions,
- take decision on appealing to the high level CES or OCHq for assistance,
- execute operational management and co-ordination of actions of strike teams,

- maintains communication, monitor the emergency situation and the progress of work,
- keep a record log,
- solve problems of application of dispersants and in- situ burning,
- keep the record of expenditures for spill clean up,
- invite experts, advisors,
- arrange exercises and drills, submit proposals for correction of contingency plans,
- prepare the final technical report.

Final report shall include the following information:

- reasons of oil spill,
- description of oil spill response operations,
- environment impact assessment of oil spill,
- expenses for oil spill response,
- remain level of pollution,
- recommendations on improving of preparedness to oil spills and corrections of the plan.

If resources and equipment of the CES (OCHq) company are not sufficient for specific oil spill containment and response, the CES (OCHq) shall request assistance from the superior (regional) CES (OCHq) which can assume control or coordination of the OSR operations or render assistance by providing required resources and equipment. In such a case company forces and equipment will be transmitted under control of superior CES (OCHq) and representative of company will be included in superior CES (OCHq)

Proposals on summoning regional OCHq can be made also by Head of BASU, a territorial or regional body of EMERCOM or SMI after evaluation of situation.

Decision on rendering assistance in OSR operations by providing federal resources and equipment or on assuming direct control of the OSR operations at the federal level shall be taken by the Government of the Russian Federation on the basis of the proposal by Inter-Agency Commission for Emergency Prevention and Response. Decision on involvement of the Civil Defense forces to oil spill containment and response operations shall be taken by the Minister of EMERCOM and reported to the Government of the Russian Federation.

In certain cases, the governmental commission can be formed to control the oil spill response operations, the chairman of which shall assume control of all resources and equipment involved, disregarding their departmental subordination.

## **NOTIFICATION, TRANSMITTANCE AND RECEPTION OF THE INFORMATION**

OSR operations are impossible with out appropriate information system. The reports about incident are transmitted master of ship to the nearest Rescue Salvage Coordination Center (RCC). The pollution reports from civil aircraft are transmitted to the air traffic controller.

The person on duty of the RCC or the air traffic controller immediately notifies Emercom territorial body and the dispatcher of BASU, local body of MNR.

All oil spills reports at sea shall be transmitted to the persons and organizations concerned without delay.

The dispatcher on duty at the BASU after receiving the information about the spill transmits it to the Head of BASU for taking decisions. After obtaining more specific information about the oil spill BASU employs own forces and equipment. In case of on regional oil spill at sea or any oil spill outside the operation zone of oil handled organization the Head of BASU informs Administration of subject of Federation and, if necessary, proposes to summon the Regional Operation Control Headquarter. Local Emercom body and SMI based on received information can do it also. After assessing the situation and gathering the OCHq members the Head of OCHq makes a decision to implement of the oil spill contingency plan.

## OIL SPILLS RESPONSE POLICY.

Oil floating on the surface always reaches shore, and shore cleanup operations may take years and cost lots of money. Offshore oil spill response policies should be based on the following principles:

- As much oil as possible should be destroyed at sea before it reaches shore in order to cut costs and reduce environmental damage.
- Mechanical recovery systems should preferably be used to clean up Tier 1 oil spills if environmental conditions allow to do this.
- All oil spill cleanup resources (dispersants and mechanical equipment) should be given equal consideration for cleaning up Tier 2 and Tier 3 spills.
- The chosen oil spill response techniques should be applied concurrently. That part of the slick that poses the greatest threat should be treated with dispersants, while the rest should be cleaned up mechanically.
- A decision to use dispersants and in-situ burning should be made solely on the basis of a net environmental benefit analysis (NEBA) of pre-approved dispersants for the polluted area or the area threatened by pollution and when the refuse to use dispersants or in-situ burning may be followed by more severe damage of bioresources and property.

## DISPERSANTS USE POLICY

Russian environment protection authorities are considering now new oil spill dispersant application regulations based on principle that dispersants should be used with optimised efficiency and acceptable effects to the marine environment. Preliminary approval by environmental authorities confirms that the dispersant in question has "in principle" been authorized for use in the territorial waters and exclusive economic zone of the Russian Federation and may be included in particular oil spill response plans. Dispersants shall be used for protection of valuable ecosystem components, recreational places and valuable economic unites. The decision to apply preliminarily approved dispersants in real-life

situation is the prerogative of the Head of Operations Control Headquarters in consultation with the concerned environment protection agencies on the basis of a net environmental benefit analysis (NEBA).

NEBA is weighing the advantages and disadvantages of different response techniques for the environment protection of the threatened area.

The following factors must be taken into consideration:

- The list of environmentally and economically valuable components that must be protected on the basis of their priority.
- Seasonal variations of environmentally valuable components.
- The effect of floating and emulsified oil on environmentally valuable components.
- The advantages and disadvantages of different oil spill response techniques.

The purpose of an NEBA is to prepare recommendations concerning the choice of environmentally and economically optimal oil spill response technique(s) in a real-life situation. An optimal technique is defined as one that will minimize the spill's adverse impact on the region's environment and economy.

Analysts may immediately rule out consideration of certain techniques because of their ineffectiveness in the given conditions and rank others in terms of effectiveness and preferability. They may recommend the use of different techniques for different parts of the slick with respect to pollutant dispersal, the recommendations must indicate whether it is possible or impossible to use pre-approved dispersants in a given situation, which parts of the slick should be treated with dispersants, the dispersant-oil ratio, and actions to monitor dispersant use. The NEBA results must be documented in a report approved by the regional environmental agency.

New regulations on oil spill dispersants used include also limitation of application, recommendations on dispersants concentration and monitoring procedures, list of pre approved chemicals.

## ASSISTING TOOLS FOR OIL SPILL RESPONSE.

**Environmental sensitivity maps.** A successful response combating operation of a marine oil spill incident is dependent on a fast response from the time the oil spill is reported until combating operations have been initiated. In order to reduce the response time and qualify the decision making process about where and how the combat efforts have to be applied, application of environmental sensitivity maps is essential. Information on the exact position and size of the oil spill and available combating measures can be plotted on the maps, and a priority of the combat efforts and means according to the identified coastal sensitive areas can then be carried out.

Some coastal areas are more sensitive to oil pollution incidents than others. Factors that determine the sensitivity are e.g. presence of important natural resources, amenity values or production activities. In planning the response to oil spills, an in-depth knowledge of the coastal sensitivities in the threatened area will enable an optimized use of response resources. Sensitivity mapping is a segment-by-segment analysis of the coastline, which

provides an overall picture. Furthermore, priorities for protection strategies can be identified through application of maps showing ecological sensitive coastal areas.

Collected baseline data for sensitivity mapping has in the past been presented in hardcopy paper maps. Fast innovations of computer programmers and computer techniques in the recent years offers today cost and work effective alternatives to the traditional paper maps. Application of geographical information systems (GIS) is a dynamic approach in which extensive amount of data can be handled in a flexible way. When compared to the traditional hard copies, GIS has the advantage that the information maps are stored in layers so the data are easy to present, use and revise in an appropriate way. Furthermore, the GIS programmers are cost-effective tools for operational decision-making and that is why were applied by CNIIMF in case of development of different contingency plans.

**Drift forecast models.** As for the environmental sensitivity maps, computerized drift forecast models serves as decision-making tools forecasting direction and velocity of spilled oil (oil slicks) thereby allowing for decisions for selection of strategy and means to be applied for the spill response.

Wide ranges of computerised drift models are available today both including forecasting and backtracking features. Some models offers also a three-dimensional approach allowing for evaluation of evaporation/dispersion of the oil depending on the type of oil spilt. At the same time some features can be used for search and rescue operations analysing surface drift of missing objects. The key and crucial issue for all drift models is the quality of simulation/verification of the local current regime. Assessment of behavior of spilled crude oil (spreading, evaporation, emulsification and dispersion) is carried out often in Russia by means of the technique offered by GOIN (S. Ovsienko, 1999) and approved by Hydrometeorological service.

## CONCLUSIONS.

The Russian set-up for oil spill preparedness and response complies on the whole with recommendations of IMO and HELCOM.

Several laws and regulations are today governing regulations for marine spill response. A number of state institutions on federal and territorial (regional) level are involved in the set-up for marine spill preparedness and response at sea. A number of overlapping responsibilities are existed between various involved authorities most likely caused by overlapping laws and regulations. A clear allocation and division of responsibilities could improve the transparency and efficiency, including cost-efficiency of the overall preparedness and response set-up. A comprehensive law as an Oil Pollution Act could improve the situation by joining the various laws and regulations in an updated regulatory framework.

Today no guidelines do exist for preparation of contingency plans for spill response. Development of specific guidelines for contingency planning could improve the basis for and the quality of contingency plans prepared on local and regional level.

Russian oil spill response policy at sea is orientated on recovering spilled oil by mechanical means. Chemical should be used with optimized efficiency and acceptable effects to the marine environment.

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