OIL SPILLS PREVENTION, PREPAREDNESS, AND RESPONSE WORKSHOP

December 10–12, 1998
Almaty, Kazakhstan

CASPIAN Environment Program

OILSPILLS PREVENTION PREPAREDNESS AND RESPONSE WORKSHOP

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i. Letter to Workshop from Prime Minister
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REPUBLIC OF KAZAKSTAN
OFFICE OF PRIME MINISTER

December 3, 1998

To Participants of the International Workshop on Oil Spill and Emergency Prevention, Preparedness, and Response

Dear Participants of the Workshop,

With great pleasure I would like to welcome representatives of the governments of Azerbaijan Republic, the Islamic Republic of Iran, Russian Federation, the Republic of Turkmenistan, and the Republic of Kazakstan, as well as the representatives of the World Bank, international organizations, oil companies, experts and research workers in the area of oil ecology, environmental protection and fish industry, and wish them successful work during the workshop.

The evidence that the Caspian states seek closer and long-term cooperation is the imposing representation of participants who have been brought together to discuss and make specific recommendations to preserve the unique ecosystem of the Caspian Sea. The Caspian Sea is the largest enclosed water body in the world, and it will be used to carry out large scale operations in oil exploration, extraction and transportation.

The agenda of the workshop, the topic selected for discussion, which is oil spill in the Caspian Sea, its emergency prevention and response, is timely and pressing. This topic provides for our united efforts to coordinate and carry out our National Action Plans to protect the Caspian ecosystem, to develop measures to prevent oil spills as a result of oil field exploration, extraction, major and field pipelines, and barging.

High professional standards of the workshop participants make us confident that during the workshop there will be a broad exchange of views on the current procedures, programs and response to emergency situations.

It would be extremely important to increase the role and the responsibilities of government agencies and oil companies in improving planning, coordination, and know how in this issue.

I can say with confidence that the recommendations of this workshop will be of practical importance to all the Caspian states, and, for Kazakstan, in particular, as it starts its off-shore oil and gas operations.

It is quite obvious that the agreement on the environmental parameters on economic activities, introduction of new environmental standards, norms and regulations, including those for emergency prevention, will require tremendous effort on the part of our states.
We view the Caspian Environmental Program approved by all the states as an example of actual steps towards achieving these goals. This international workshop should become an evidence of our commitment to the concept of preserving environment.

I would like to wish you successful work and effective cooperation in the name of a noble purpose to preserve the unique ecosystem of our common property, the Caspian Sea.

Nurlan Balgimbaev

PRESS RELEASE

Caspian Regional Oil Spill Prevention, Preparation and Response Workshop
10-12 December, 1998
Almaty, Kazakhstan

The Republic of Kazakhstan is hosting a three day workshop on Caspian Sea Oil Spill Prevention, Preparation and Response, within the framework of the Caspian Environment Program.

Workshop participants include representatives of the five Caspian littoral states (Azerbaijan, Iran, Kazakhstan, Russian, Turkmenistan), international and national oil companies and consortia, international organizations such as the International Maritime Organization, International Petroleum Industry Environmental Conservation Association, and the International Tanker Owners Petroleum Forum, Caspian experts on relevant scientific, legal and technical matters, and environmental non-governmental organizations.

The workshop will examine current emergency response programs of the Caspian littoral states in order to better define roles and responsibilities in the event of an accident. Follow on activities may focus on ways to improve regulatory systems, emergency procedures, training programs, communications equipment, and overall management.

The objectives of the workshop are to:

- Better understand the roles and responsibilities of the governments and the oil companies in the event of an accidental release and what decisions each would be called upon to make.
- Compare experiences of several countries and oil companies with oil spills.
- Share the latest technical information to improve planning processes, technical competency, and knowledge of the decisions that would need to be made in the event of an incident.
- Encourage the exchange of information on the current procedures, programs, and emergency response measures of oil companies and other governments.
- Develop follow up recommendations to improve the emergency response programs of the Caspian states.

The workshop is sponsored with support from the World Bank, US Agency for International Development, European Union-Tacis, Offshore Kazakhstan International Operations Company (OKIOC), Kazakhstan Petroleum Association (KPA), Exxon and Shell companies.

WORKSHOP REPORT

CASPIAN ENVIRONMENT PROGRAM

CASPIAN REGIONAL OIL SPILLS PREVENTION, PREPAREDNESS, AND RESPONSE WORKSHOP

ALMATY, 10-12 DECEMBER 1998

Background

1. A Caspian Regional Workshop on Oil Spills and Emergency Prevention, Preparedness, and Response was held in Almaty, Kazakhstan December 10-12, 1998. The Workshop was convened under the auspices of the Caspian Environment Program, and as part of the Kazakhstan National Environmental Action Plan.

2. Over 200 participants from the five Caspian states, international organizations, oil industry, and non-government organizations (NGOs) attended the Workshop, which provided a forum for an exchange of information on current spill response programs and practices, and identified priority measures to improve response capability in the Caspian region, including both national emergency response systems and regional cooperation. The workshop was jointly sponsored by the World Bank, US Agency for International Development (USAID), European Union (EU-Tacis), and the oil industry. Minister of Ecology and Natural Resources Daukeev hosted the Workshop on behalf of the Republic of Kazakhstan, and emphasized the high priority that Kazakhstan places on addressing off-shore oil spill prevention and response.

3. Presentations were provided on the following topics:

   - Oil spills preparedness and response techniques
   - Recent international oil spills experiences
   - Environment sensitivities
   - The oil industry's approach to response
   - Principles of efficient response to the oil spills
   - The oil spills response systems of Caspian states
   - Initiatives for improving coordination and capabilities to react to spills in the Caspian Sea.

4. During the meeting there was an active exchange of information on current procedures, programs and methods to control and suppress accidents and emergencies. Of crucial importance for an efficient emergency response system are clearly defined roles and responsibilities, a high state of preparedness, scenario planning, rapid mobilization of resources, standards for accountability, and training by the Caspian governments and oil companies. This will require review of contingency plans, procedures, improvement of planning processes, coordination and

technical competence to address accidents and emergencies that could take place in the highly sensitive Caspian environment.

WORKSHOP RECOMMENDATIONS

5. The Workshop produced a general consensus on five key recommendations to improve emergency preparedness and response capabilities, as follows:

    a) Prepare or update National Oil Spills Contingency Plans. The Republic of Kazakhstan is committed to develop a pilot project in this regard in the nearest future.

    b) Conduct joint training and exercises between the countries, with the oil companies, and with other international groups and NGOs. One of the early activities could be a crisis management exercise between the oil companies and the governments to test current emergency plans.

    c) Map sensitive areas, including social and economic installations that should be protected in the event of a major oil spill.

    d) Develop mechanisms for cooperation between the Caspian littoral states, including bilateral and multilateral agreements across the region, and cooperative agreements with international organizations, oil spills cooperatives, and the oil companies. The cooperation agreements could address research and development, technology transfer, and sharing data on dispersants, environmental studies, spill modeling, and major risks from petroleum operations.

    e) Establish mutual aid organizations or agreements, including pre-approval for expedited custom and immigration clearances for oil spill equipment and personnel.

6. In addition, many other issues were identified as needing further review, analysis and possible action by the Caspian states and/or industry. These include definition of principles to determine spiller liability and the respective roles of industry and government; methodology for defining regional versus national responsibilities; funding options; and the involvement of non-government organizations.

Other Recommendations and Findings

7. The following additional recommendations and conclusions emerged from the discussions and exchange of information during the Workshop:

    - Protection of the biologically diverse and ecologically unique Caspian Sea requires coordinated, responsible environmental actions on the part of each Caspian state.

- Increased oil and gas industry development in the Caspian region could potentially increase a risk of negative impacts on the flora and fauna (of special concern are such endemic species as Caspian seal, sturgeons, birds, and their habitats). For these reasons oil industry is in most cases required to follow the highest standards when oil operations are conducted.

- Oil spill risks arise from accidents during off-shore drilling operations, oil field equipment and facilities operation, operation of field crude oil gathering lines and pipelines, crude oil transportation in tankers and barges, and transfer of product at ports. Therefore it is crucial for oil and gas producing companies, shipping lines, port authorities and regulatory officials to develop strong measures to prevent oil spillage and gas leakage, and to react immediately to emergencies.

- National emergency response plans for the Caspian should cover potential spills from oil tankers with tonnage exceeding 150 tons, and other ships with loaded capacity of more than 400 tons; fixed or floating sea platforms and their pipelines; and ports handling oil and gas shipments.

- Arbitration procedures between governments and with oil companies are needed to resolve cross boundary liability issues, claims, or disputes between Caspian states on cleanup costs or damage claims. The effectiveness of these procedures will depend on the advance agreements between the countries and oil companies on arbitration of claims, and the extent of regional cooperation and planning on ways to address spills.

National and Regional Actions

8. Based on questionnaires completed during the workshop and discussions during the country-specific small group break-out sessions, a series of priority national and regional steps have been identified. In summary, key ***national*** actions identified include:

- prepare or update national oil spills contingency plans, including response teams and coordinating measures to address the consequences of oil spills, and to mobilize the manpower necessary
- a risk prioritization study of the major risks from petroleum operations, including modeling
- scenario planning, including the appropriate response measures, priorities, and strategies
- establishment of oil spills response teams for the Caspian Sea
- procedures for testing, approval, and use of dispersants
- analyze the need for insurance requirements for pipeline, oil and gas exploration and production activities, and marine operations
- review the need for an incident command center, including the detailed plans and drawings for communication systems
- joint training activities and field exercises with oil companies to test emergency response systems and the skills and experience of personnel

- review the adequacy of the institutional and regulatory framework for emergency response systems, to define which agencies or ministries are responsible, notification procedures for major spills, and methods for funding these oversight activities.

9. Priority actions identified for follow-up on a ***regional*** basis include:

- Identify principles for clearly defining the roles of the spiller and the government in the event of a major spill
- Prepare principles for defining the liability of the spiller for damages and cleanup costs
- Provide for regional cooperation between each Caspian state in each national oil spills contingency plan
- Prepare multilateral agreements on mutual aid, research and development, sharing technology, data on dispersants, environmental studies, spill modeling data, and data on major risks from petroleum operations
- The Framework Convention for the Protection and Sustainable Management of the Caspian Environment and its Resources, now under consideration by the littoral states, could serve as a suitable mechanism for the development of regional cooperation agreements for oil spill prevention and response.

Next Steps

10. The attached Action Plan summarizes the results of the Oil Spill Prevention, Preparedness, and Response Workshop, and contains the list of projects and tasks that were identified through the presentations and discussions during the Workshop as steps needed to improve emergency response capabilities in the region. The Action Plan lists the topic, major tasks and subtasks, objectives/outcomes, national participation, probable partners, estimated costs, and sources of funding to carry out the action. It is important to note that, in most cases, funding needs to be identified in order to implement the actions. The steps may be implemented within the framework of the Caspian Environment Program, either by individual Caspian states or as part of bilateral or multi-country initiatives. Many of the tasks identified may be included in the work plan of the Caspian Regional Thematic Center for Emergency Response, which is hosted by the Islamic Republic of Iran.

ACTION PLAN

CASPIAN REGIONAL OIL SPILLS PREVENTION, PREPAREDNESS AND RESPONSE

Topic	Major Tasks and Subtasks*	Objectives/outcomes	Country(ies)	Probable Partners	Estimated Costs	Sources of Funding
1. **National Oil Spills Contingency Plans**	*1.a. Data review and preparation* • Review other national and regional oil spills contingency plans and IMO conventions • Review current Caspian plans to identify areas where improvements are needed • Review oil spills contingency plans of oil, pipelines and shipping industry in the region *1.b. Prepare guidance document* • Identify detailed timetable, tasks, and objectives for preparation of national oil spills contingency plans *1.c. Pilot project* • Initiate a pilot project with Kazakhstan to develop a national oil spills contingency plan *1.d. Prepare or revise national oil spills contingency plans to:* • Define the roles of the government (national and local levels) and the spiller • Establish oil spills response teams • Describe sensitive areas based on	1.a & b. Prepare basis for development of National Contingency Plans 1.c. Pilot project to test design and advance oil spill response preparedness in Kazakhstan 1.d. Develop National and Regional Oil Spills Contingency Plans that integrate national, local and industry	• All countries except the Russian Federation indicated a need to develop national oil spills contingency plan.	• To Be Determined • Could include bilateral programs, international financial institutions (IFIs), international organizations, and oil industry.	$200,000-250,000 per country	To Be Determined (TBD)

* Many tasks or subtasks could be undertaken in more than one country, with the agreement of the countries and international partners. For example, development of procedures for use of dispersants in the Caspian, mapping sensitive areas, and joint training (*inter alia*) could usefully be carried out on a multi-country basis.

Topic	Major Tasks and Subtasks	Objectives/outcomes	Country(ies)	Probable Partners	Estimated Costs	Sources of Funding
	inputs from the Mapping Project • Develop response priorities, strategies and measures • Integrate the emergency plans of oil companies and ports • Identify procedures for testing, approval and us of dispersants • Prepare or clarify notification procedures, a 24 hour hotline, and identify responsible officials • Establish schedule and means for periodic training, drills, and exercises • Establish or upgrade wildlife protection programs • Identify equipment available • Develop requirements for insurance based on internationally acceptable standards • Identify elements needed to link National and Regional Contingency Plans	response capabilities Response teams identified, including key officials involved, their roles, and coordination measures				
2. Joint Training and Exercises	• Develop a training program for government personnel, after members of the Caspian emergency response teams have been identified under the national oil spills contingency plans, to include the following: a) Identify the types of training needed to perform job tasks b) Work with oil companies to identify the types of	• Government personnel develop skills necessary to respond efficiently to spills and work closely with spiller • Classroom training, crisis management tabletop exercises and field deployment exercises provided on a regular basis • Scenario planning	• High priority for Iran, Kazakhstan and Turkmenistan • In Azerbaijan, SOCAR is already working with international oil companies • Russia already works with oil companies, the	• To Be Determined • Could include bilateral programs, IFIs, international organizations, and oil industry	• Preparation of training: $60,000 • Conduct training: $30,000 per country year • Major tabletop simulation: $300,000 • It is hoped that government personnel will	TBD

Topic	Major Tasks and Subtasks	Objectives/outcomes	Country(ies)	Probable Partners	Estimated Costs	Sources of Funding
	training done for their employees and contractors c) Develop national and regional cooperative agreements with oil companies and spill cooperatives for joint training and exercises d) Conduct a tabletop exercise to test emergency plans for management of an incident	exercises conducted to test emergency procedures • Command post simulations or field exercises conducted with oil companies for technology transfer and to improve cooperation	Japan Maritime Safety Agency and the US Coast Guard • However, overall all countries gave training high priority		be invited to participate in simulation organized by an oil company • In this case, $50,000 is needed for preparation and travel costs for participants	
3. Mapping Sensitive Areas	• Review existing emergency plans, reports, environmental impact assessments, and other monitoring documents that identify sensitive areas. • Map all environmentally sensitive areas to describe the resources involved, habitats or installations (e.g., power plants, desalination facilities) to be protected, and whether there are any cultural, archeological or religious objects • Rank habitats or sensitive areas as high, medium, or low priority • Mapping data can be collected on a national or regional basis, but a consistent approach should be used in protection of sensitive areas • Develop recommendations for protection measures based on the mapping, risk prioritization and oil spills modeling studies	• Information on sensitive areas obtained to prepare response strategies in the national oil spills contingency plans	• All Caspian states except Russian Federation rated this as a high priority • Russian Federation has already undertaken some work on this topic, and ranked mutual aid and multilateral agreements as high priority	• To Be Determined • Could include bilateral programs, IFIs, international organizations, and oil industry Likely strong linkage with the work of the Caspian Regional Thematic Centers for Legal/Regulatory problems (Russia) and Emergency Response (Iran)	• $250,000-375,000 for the region	TBD

Topic	Major Tasks and Subtasks	Objectives/outcomes	Country(ies)	Probable Partners	Estimated Costs	Sources of Funding
4. Mechanisms for Cooperation	• Review the current and proposed agreements between Caspian nations and with oil companies • Examine international conventions on oil spills response, funds, liability, and compensation • Review bilateral and multilateral agreements from other regions (e.g., North Sea, US-Canada) that can serve as models for a Caspian agreement • Consult with oil companies to define cooperation mechanisms • Draft one or more cooperative agreements to define interactions and cooperation mechanisms between Caspian states and with oil and transport industries, and to address the role of NGO's	• Develop effective regional cooperation mechanisms for oil spills response, including joint contingency plans and strategies to minimize the damage of a major spill	• Russian Federation, Turkmenistan and Iran rated this issue very highly • Kazakhstan and Azerbaijan rated national oil spills contingency plans and mutual aid much higher as part of an efficient emergency response system	• To Be Determined • Could include bilateral programs, IFIs, international organizations, and oil industry • Likely strong linkage with the work of the Caspian Regional Thematic Centers for Legal/Regulatory problems (Russia) and Emergency Response (Iran)	• Approximately $500,000 over three years	
5. Mutual Aid	• Establish task forces at the national and regional levels to coordinate development of a mutual aid system for spills response equipment and personnel • The task forces would: a) Inventory equipment across the Caspian region b) Prepare agreements for mutual aid c) Identify and remove impediments to the rapid movement of equipment and personnel across national boundaries, and	• An efficient system to access oil spills equipment and personnel located in the Caspian region for rapid and cost effective response	• Mutual aid was the highest rated initiative among all the Caspian states	• To Be Determined • Could include bilateral programs, IFIs, international organizations, and oil industry	• $450,000 for initial workshop, consultant services and task force support	TBD

Topic	Major Tasks and Subtasks*	Objectives/outcomes	Country(ies)	Probable Partners	Estimated Costs	Sources of Funding
	establish procedures for pre-approved customs and immigration clearances d) Make recommendations for air transport of equipment to the scene of a oil spill e) Make recommendations on cost sharing that recognize the financial commitments already made by responsible companies to provide for oil spills response equipment					
6. **Prepare a Risk Prioritization**	• Each country identifies its major oil and gas activities, including offshore platforms, pipelines, terminals, marine operations and shipping • Examine the relative risks of each activity based on the location of facilities, the condition of equipment, proximity to sensitive areas, the type of oil produced or transported, and the worst case scenario for a major spill • Develop a risk prioritization based on the analysis	• Identification of the major risk activities, worst case impacts, and optimal response and mitigation strategies to enable governments and companies to plan efficiently for the most likely spill scenarios • Response priorities and strategies contribute to preparation of the national oil spills contingency plans	• All Caspian states indicated that it is important to assess the risks from various oil and gas activities, to develop response plans and strategies, and measures to mitigate spills	• To Be Determined • Could include bilateral programs, IFIs, international organizations, and oil industry	• $350,000 for the region	TBD
7. **Oil Spill Modeling of High Risk Areas**	• Collect information on major offshore oil and gas activities, including location and physical characteristics • Collect information on wind, current and tidal data • Project the effects of spills • Using data collected, predict the	• Oil spills modeling is essential to predict the areas that would be most affected by a spill, which sensitive areas require special protection, and where to deploy equipment and personnel as part	• Azerbaijan, Iran and Kazakhstan ranked scenario planning as quite important	• To Be Determined • Could include bilateral programs, IFIs, international organizations, and oil industry	• $50,000 per country or about $250,000 for the region	TBD

Topic	Major Tasks and Subtasks	Objectives/outcomes	Country(ies)	Probable Partners	Estimated Costs	Sources of Funding
	effects of a major spill, the areas that would be affected, the worst case scenarios, and identify optimal response measures	of the oil spills contingency plan				
8. Establish Principles for the Respective Roles of the Spiller and the Government in a Cleanup	• Establish a regional task force to review current responsibilities, consider how spiller responsibilities should be defined, and determine how to implement these principles across the region • Review the experience of international organizations, other governments and oil and shipping industries to develop a definition of the spiller and government responsibilities • Make recommendations on responsibilities that would be incorporated into the national oil spills contingency plans	• Definition of the roles and responsibilities of the government and the spiller for clean up of spills • Development of a consistent approach to response across the Caspian Basin • Input to the national oil spills contingency plans, leading to a more efficient approach to response across the region	• Iran, Kazakhstan, and Turkmenistan rated this as a very important issue • With additional oil and gas development in the offshore, this will be of increasing concern to oil companies in the coming years	• To Be Determined • Could include bilateral programs, IFIs, international organizations (e.g., IMO), and oil industry	• $100,000 for the region	TBD
9. Establish Principles on Spiller Liability	• Review the current approach to liability in each Caspian state • Examine relevant international conventions and the approaches to liability in 3-4 other countries • Recommend international agreements to address transboundary liability issues • Develop a clear set of principles for liability on a national basis • Establish arbitration procedures for settlement of claims between the Caspian states	• A clear set of principles to provide guidance to oil companies on their responsibilities for cleanup costs and damage to resources • Identification of what standard of liability will be used to hold the governments accountable for spills cleaned up by government entities • Provide input to the national oil spills	• Each Caspian country rated liability issues as important	• To Be Determined • Could include bilateral programs, IFIs, international organizations (e.g., IMO), and oil industry	• Prepare position paper on spiller liability: $20,000 • Regional workshop to debate liability issues: $100,000	TBD

Topic	Major Tasks and Subtasks	Objectives/outcomes	Country(ies)	Probable Partners	Estimated Costs	Sources of Funding
		contingency plans to provide certainty on the standard for liability				
10. Establish Database or Website	• Review the current website for the Caspian Environment Program • Access the types of information needed for communication between the Caspian states, with NGO's and with oil transport companies • Determine optimal location, format, and cost of a database for oil spills prevention, preparedness, and response projects, procedures, plans, and programs • Establish or upgrade database or website	• Provide a data sharing and management tool for communication within the region and with NGO's, and industry	• This was a recommendation by Kazakhstan to help issue proper communication and coordination with NGO's and other Caspian states	• To Be Determined • Could include bilateral programs, IFIs, international organizations, and oil industry	• $200,000 for data input and personnel for a three year period	TBD
11. Review Current Institutional Capabilities (Regulations, Equipment)	• Examine the current legal standards of the Caspian states governing transboundary spills and response • The review should include the legal and institutional basis for emergency response plans, equipment needs, the standards of liability, spiller responsibility, arbitration of claims, funding of activities, spiller notification procedures, use of dispersants, protection of sensitive areas, communications with neighboring states, training, and penalties • Consider whether binding	• Strengthen institutional capabilities and assure that efficient emergency response systems are in place • Establish a command center and a 24 hour emergency response hotline • Development of legal framework to enable the Caspian states to work together on the ratification of appropriate international oil spills	• Iran and the Russian Federation rated this very highly	• To Be Determined • Could include bilateral programs, IFIs, international organizations, and oil industry	• $400,000 for region • Command centers: from $300,000 to $1,000,000 plus country to assess whether the center is needed and to prepare a cost estimate	TBD

Topic	Major Tasks and Subtasks	Objectives/outcomes	Country(ies)	Probable Partners	Estimated Costs	Sources of Funding
	bilateral and multi-lateral agreements should be established	conventions covering contingency plans, funding, liability, and compensation for maritime spills				

I. Oil Spill Preparedness and Response - International and Regional Perspectives

Presentation made by Mr. S.Z.Daukeyev, Minister of Ecology and Natural Resources

The Caspian - a single organism, and any wound even small one whether it is in the North or South, East or West inflicted due to our economic activity should be considered as a common pain felt by the biodiversity, by gray waters of the Caspian, its coastal zone independently what country it belongs to.

This noble idea and concern are to unify us, our governments, environment specialists and oilmen, and to do the best for our natural resources (oil and gas) which our nations associate with their economic prosperity to be developed under single condition - preservation of original nature of the Caspian.

In that sense the actual work of our workshop, discussions, and decision making on next steps and recommendations have to infer from forthcoming items and problems:

1. Working out a mechanism for regional cooperation on effective emergency response systems, efficient environment management, and settling transboundary oil spills with intergovernmental agreement or multilateral agreements between countries.
2. Establishment of clear principles related to responsibilities for oil spills to find sequential clean up, costs and damage approach.
3. Encourage an efficient approach for regional solution of the problem for mutual help, immediate response and equipment delivery from neighboring countries.
4. Consistent oil spills management, liability and responsibilities for spillers with corresponding government oversight if government decision is to be made.
5. Verify and adjust current legislative and regulatory systems to international standards, capability to respond and assign responsibility in the government, government role versus private sector, search for emergency response teams, use of dissectors, responsibility standards, prevention systems.
6. Introduction of improved response system through approval of national plans on possible oil spills.
7. Initiate join activities with oil companies to establish cooperation basis, improvement of planning, table top training and exercising, simulation of oil spills management, oil spills training courses and exercises.

The Caspian international environment program and Thematic center for immediate response.

I hope that the workshop, its recommendations will highly interest the Caspian states, oil companies and other groups, and allow them to define certain measures for implementation of ideas and concepts of the workshop.

BEST AVAILABLE COPY

Presentation

made by

Mr. Sh. K. Kulmakhanov

Chairman of the Emergency Committee

of the Republic of Kazakhstan

at the Workshop on Caspian Region Oil Spills Emergency Prevention,

Preparation and Response

Almaty city

December, 1998

System for Caspian Region Oil Spills Emergency Prevention and Liquidation in Kazakhstan

Dear Mr. Chairman!

Dear ladies and gentlemen!

The subject of this workshop is vitally important for Kazakhstan. At the same time, the problem of oil and processing solution spills prevention for Caspian sea is a general one for all Caspian states, authorities and non-government organizations, and oil companies that participate in mining the Caspian sea entrails.

Therefore, the exchange of ideas, experience and open discussion on the above subject may allow us to find out efficient ways for emergency prevention in this region.

According to legislation of the Republic of Kazakhstan and the government regulations, the Emergency Committee of the Republic of Kazakhstan serves as a coordinating central state body in prevention and liquidation of subsequences of accidents, catastrophes and natural calamities.

Let me introduce you in brief the structure and responsibilities of the Committee.

Here, Slide 2 shows some chronological information on how the Committee has been forming.

At present, the Emergency Committee unites the system of Civil Defense and relevant military troops, the State Anti-Fire Services, the State authorities in charge of emergency, industry safety and mining inspection (former Gosgortekhnadzor), and its regional authorities.

Moreover, the Committee coordinates activity of three inter-departmental commissions:

- the Inter-Departmental State Commission on emergency prevention and liquidation;
- the Inter-Departmental Commission on provision of security on transport; and
- the Inter-Departmental Anti-Epidemic Emergency Commission, the members of which include the officials of ministries and state departments and chairmen of regional emergency commissions.

The Committee consists of the central body, regional departments and sub-departmental organizations.

Responsibilities of the state emergency prevention and liquidation authorities are shared and regulated by legislation of the Republic of Kazakhstan and the government decisions (Slide 3).

The Emergency Committee of the Republic of Kazakhstan is the central executive body, which is specially authorized in emergency caused by natural and processing situations. It conducts the state policy of the population, environment and economy protection against accidents, catastrophes, and natural calamities. For these purposes, the Committee conducts inter-departmental coordination in accordance with legislation.

The local representative and executive authorities are responsible for emergency prevention and liquidation on their territory. Each oblast, city and region has separate emergency commissions.

In accordance with government decree # 1298 as of 28 August, 1997, all actions approved by the Emergency Committee and aimed to prevent and liquidate the subsequences of accidents and catastrophes are subject to be performed by the Ministry of Energy, Industry and Trade, Ministry of Transport and Communications, Ministry of Ecology and Natural Resources, Ministry of Defense, Ministry of Internal Affairs, and Ministry of Agriculture.

The Emergency Committee of the Republic of Kazakhstan directly manages the State system for prevention and liquidation of regional and

global emergency situations of natural and processing character. For this, the Committee has adequate authorities (Slide 4).

Legislation on emergency prevention and liquidation comprises the Law of the Republic of Kazakhstan On Emergency Situations of Natural and Processing Character, other legal emergency regulations, which stipulate the procedure of prevention, damage decrease and liquidation of the consequences of accidents, catastrophes and natural calamities, use of material and technical resources and transport of organizations, irrespective of their forms of ownership and departmental belonging, and provision of emergency medical aid services.

Coordination of activity and operating management of all rescue services and troops in the republic is given to the Emergency Committee of the Republic of Kazakhstan.

Rescue services and troops are formed on permanent staff basis as professional rescue services that include militarized mine- rescue, anti-gusher, gas-rescue, anti-fire, operating rescue and other emergency divisions.

The "Ak Beren" republican state enterprise was established by the Government of the Republic of Kazakhstan, decree # 1139 as of 9 November, 1998. The purpose and the main objective of its activity is to perform a set of actions regarding prevention of open gas and oil gushers on territory of the Republic of Kazakhstan, in particular, on shelf of seas and water areas, performance of emergency rescue activities, and participation in liquidation of open gas and oil gushers.

Such kind of large service companies should be licensed by the Emergency Committee of the Republic of Kazakhstan.

Taking into account the specificity of sea oil operations, it becomes of need to establish in Bautino settlement, Aktau city, a specialized service on urgent respond to incidents in mining oil and gas sea fields. This service should be a part of the "Ak Beren" republican state anti-gusher enterprise and should include specialists that were trained at sea anti-gusher grounds.

The Specialized Sea State Inspection was established by the Committee, order # 84 as of 16 March, 1998, for the purpose of technical inspection at preparation and performance of oil operations on sea and internal water areas of the Republic of Kazakhstan.

Situation in mining the mineral resources of North Caspian area. The Kazakhstani area of Caspian Sea is the shallow water, and its north part does not freeze in winter. This area is one with an ecologically sensitive environment and unique sea flora and fauna.

Taking into account that North Caspian area is a protected one since 1974, investigations regarding a possibility to mine its sea mineral resources have been regularly conducting (Slide 5). A special attention was paid to **emergency risk evaluation in water area**. The results of expertise of the Project of prospecting boring at North of Caspian Sea, in particular, the provision of secure work conditions, show that serious accidents and other problems were connected with boring the under-salt arrays, in which dangerous manifestations of catastrophic absorption of solutions, anomaly high array pressures and hydro-carbon with high concentration of sulphureous compounds are expected.

Oil companies should remember the consequences of open gusher of oil well # 37 of the Tengiz field in 1985, when it takes more than 14 months for its liquidation. During this time it was thrown into atmosphere more than 4 mln ton of oil, 2.5 bln cubic meters of gas with dangerous concentration of hydrogen sulphide compounds.

In order to prevent in further such catastrophic accidents, it is required **to plan** very thoroughly **the actions on oil spills prevention and liquidation** (Slide 6). Oil spill at North of Caspian Sea may occur as a result of an accidental gushing of oil wells during boring. In accordance with the existing Requirements, each operator company should submit to the Emergency Committee of the Republic of Kazakhstan a Plan of gusher prevention and liquidation. This Plan should define a company, which will perform work on liquidation of open gushers and elimination of their consequences.

For all types of activity related with development, including seismic investigations and prospecting boring, the plans of actions on spills prevention and liquidation of not only oil, but also of fuel, chemical reagents, dangerous matters and materials, should be prepared. During preparation of these plans, the rate of risks related with spills as well as a possible volume and type of liquid spilled should be taken into account. The types of technical instruments for spill-fighting, demand in personnel, organizational actions to provide efficient liquidation of large and small spills as well as a list of most vulnerable and sensitive sectors along with the instruments for their protection should be indicated in the plan.

The plan should explicitly describe the actions that are taken in case of spill, communicational system, organizational structure, responsibilities of each person, who lead the work on spill liquidation, and contacts with relevant authorities and departments. The plan should also include the ways for removal of spilled oil, dirty ground and waste, transportation and allocation of the personnel, which is involved in spill liquidation. The plan should be used in practice through regular training and updated upon necessity. The personnel should be kept well-trained and ready for performing its responsibilities in case of spill.

The plan of liquidation of possible accidents should prescribe the presence of anti-gusher service personnel before opening the fluid-containing arrays. Opening the arrays should be performed after testing the personnel and boring equipment for readiness. The testing is performed by the commission of boring enterprise in presence of representatives of anti-gusher service.

Special attention should be paid to **training of personnel**. The company, which conduct oil operations, should have educated and trained emergency team, which can unwind equipment during short period, and an emergency plan, which defines the possible risks and methods for risk decrease. Such a plan, which serves as a part of the general emergency plan and of the plan for secure work performance, should be adopted by the emergency inspection authorities along with the Technical Project and used

in regular training. The training should include work with the Emergency Committee of the Republic of Kazakhstan, its regional authorities and services.

The system of respond at possible oil spills. According to the Project of prospecting boring, in order to liquidate any emergency situations and fight with their consequences, including oil spills on sea, three levels of respond are defined.

The first level assumes that the personnel and equipment placed on the sea boring barge and other supplementary ships are involved. The existing mine-laying and oil-gathering equipment and personnel allow one to liquidate the spill up to 10 tons.

The second level includes fighting against spills up to 100 tons. In this case, the equipment and technical aid of off-shore base, which is situated in Bautino settlement, will be used. Period for mobilization is several hours.

The third level of respond assumes that the international assistance of specialized centers in fighting against sea spills will be used. The nearest centers are situated in Western Europe. Period for mobilization of personnel of international rescue services and equipment to airport is 12 hours.

During this workshop we should discuss the unsolved problems on prevention of emergency situations on sea (Slide 7). In our point of view, **the main problems in responding to emergency situations related with oil spills on sea are the following.**

The existing legislation of the Republic of Kazakhstan does not properly regulate the problems of

- actions of oil companies, central and local executive bodies, other departments and organizations in case of spills;
- liabilities of parties, which are responsible for provision of accident-free utilization of oil wells on sea;
- joint actions of states and companies in boundary spills of oil and collaboration;
- procedures for urgent notification of the Government and neighboring states;

- principles of fast custom control of emergency equipment passing through the boundaries of Caspian Sea countries;
- responsibility of companies for the expenses for refining and damage compensation.

Up to present time, consortium of oil companies does not completely solve organizational, financial, technical questions in case of possible oil spill.

The operating company does not represent and adopt the plans of actions in case of open oil and gas gushers and other accidents on sea.

Therefore, the Emergency Committee of the Republic of Kazakhstan suggest to consider in addition a series of principally important questions (Slide 8) and develop detailed procedures on spills liquidation. In this case, they should include the following requirements:

- Each oil company or group of companies, which operate in sea areas situated nearby each other, should have extra equipment for fighting against oil spills and a mobile high-speed ship for transportation of this equipment during short period of time to the place of accident and its fast unwinding for oil keeping and refining.
- In case of application of chemical dispersents for oil spills liquidation, it is important to choose those, which are efficient, low toxic, do not accumulate in human body and could be biologically and chemically decomposed. For their use in oil spills, it is required to receive preliminary a special pemission.

In wide-scale activity on prevention and liquidation of possible oil spills, we rely on fruitful **International collaboration,** that will allow us to fit the generally accepted principles and rules of preventive measures in oil spills.

For the purposes of rising the efficiency of work organization in liquidation of oil spills on sea in the Republic of Kazakhstan, we suggest for your consideration a series of proposals, which could assist in coordinating and uniting the efforts of Caspian Sea states in quick responding to emergency situations, related with large oil spills in Caspian Sea:

- Sign by the Caspian Sea states an inter-governmental agreement on establishment of the Coordinating International Center for provision of

information for mass-media and population about emergency situation on Caspian Sea shelf, related with large oil spill (more than 100 tons);

- Sign by the interested countires an agreement on quick access to national ware-houses with emergency equipment including those that are managed by national oil companies;
- Solve problems related with immediate use of emergency equipment in fighting against oil spills without custom testing and certifing procedures;
- Sign up an agreement on joint work for oil spills liquidation at inter-boundary areas;
- Unify the principle of responsibility in case of emergency situations, management of work on spillls liquidation and adoption of principle decisions, in which the companies play a role of a principal executor and manager; rescue services play a role of an advisor and assisting force; government plays a role of international coordinator.

The Emergency Committee of the Republic of Kazakhstan pays a special attention to the considered problem and is ready to arange a close collaboration with all the Caspian Sea states and companies, which conduct sea operations in mining hydro-carbon raw materials in Caspian Sea.

Establishment of a specialized rescue service of quick response lets us to unify efforts of the Caspian Sea states, companies, international organizations in liquidation of large accidents on sea. It is of urgent need to solve the problem of finance, provision of this service by emergency technics, boats, training of personnel, in-staff rescuers, anti-gusher services.

Only by joint and well-thought-out measures and actions it is possible to prevent accidents, avoid emergency situations with hard consequences.

In conclusion, I would like to wish the participants of the international workshop fruitful work and success in solving not easy problems discussed.

Thank you for attention!

Slide 1

Republic of Kazakhstan

System for Caspian Region Oil Spills Emergency Prevention and Liquidation in Kazakhstan

the Emergency Committee of the Republic of Kazakhstan

December, 1998

Slide 2

Chrohological information

- In former Soviet Union, the responsibility for notification and liquidation of large oil spills was put on the Ministry of Oil Industry, Ministry of Gas Industry, Ministry of Oil and Chemical Industry, Ministry of Geology, production enterprises of these ministries, which had specialized rescue and anti-gusher services.
- In December 1990, the Emergency Commission was established according to the decree of Council of Ministers of Kazakh SSR. In August 1991, the Regulation on Emergency Commission was adopted.
- In 1993, the State Emergency Commission was established by the Government of the Republic of Kazakhstan.
- In 1995, the Commission was transformed into the State Emergency Committee (SEC).
- In 1996, the responsibilities of the Committee for inspection on secure work and mining inspection were given to the State Emergency Committee of the Republic of Kazakhstan.
- In 1997, the SEC was transformed into the Emergency Committee of the Republic of Kazakhstan. The State Anti-Fire Service became a part of the Emergency Committee of the Republic of Kazakhstan (ECRK).
- The Republic of Kazakhstan worked out a long-term programme on prevention and actions in emergency situations (Regulation #1081 of 1997).
- In 1997, the Government of the Republic of Kazakhstan issued Decree #1298 "On State System of Prevention and Liquidation of Emergency Situations".
- The functions of management of the State system of emergency prevention and liquidation were put on the ECRK.

- The ECRK incorporates the system of Civil Defense and relevant military troops, the State Anti-Fire Services, the State authorities in charge of emergency, industry safety and mining inspection, State Protection against natural calamities (Kazselezashita and Tsentrspasbod) and regional authorities.

Slide 3

Share of responsibilities

- Requirement for security provisions for explosion- and fire-dangerous units are stipulated by laws, degrees of the President and the Government, other legal regulations and technical documentation of the Republic of Kazakhstan.
- In accordance with its responsibilities, the Emergency Committee of the Republic of Kazakhstan conduct direct management in prevention and liquidation of regional and global emergency situations of natural and processing character.
- In accordance with government decree # 1298, development and performance of the actions approved by the Emergency Committee and aimed to prevent and liquidate the subsequences of accidents and catastrophes are put on the Ministry of Energy, Industry and Trade, Ministry of Transport and Communications, Ministry of Ecology and Natural Resources, Ministry of Defense, Ministry of Internal Affairs, and Ministry of Agriculture.
- In accordance with the law, the local representatives and executive bodies establish regional emergency commissions and are responsible for prevention and liquidation of emergency situations on relevant territories and units.

Slide 4

Authorities of the Emergency Committee of the Republic of Kazakhstan

- Coordinates activity of ministries, state committees, local executive bodies and scientific institutions in the region of prevention and liquidation of emergency situations of natural and processing character.
- Submits for consideration of the Government of the Republic of Kazakhstan the state reports on measures of protection of population, environment and economy against emergency situations.
- Manages the Civil Defense forces in actions on emergency prevention and liquidation.
- Conducts direct management in liquidation of regional and global emergency situations.
- Mobilizes material and technical resources of organizations, irrespective of their forms of ownership and departmental belonging, on liquidation of emergency situations.
- Coordinates the activity of rescue services and divisions.
- The last example of participation of such services is the accidental gusher on the Tengiz-37 well in 1985, when it took 14 months to liquidate the accident.

Slide 5

Situation on mining of oil and gas potential on the North Caspian Sea shelf

- By the decision of the Cabinet of Ministers of Kazakh SSR, decree #252 as of 30 April, 1974, the North Caspian Sea was declared as a protected area. Following this decision, it was forbidden to mine mineral resources at off-shore, and no programs on preventive measures and fighting against oil spills were developed.
- After Day of Independence of Kazakhstan, the Government adopted a decision on performance of oil operations in internal water area and on Caspian Sea in Kazakhstan.
- By decision of the Cabinet of Ministers of the Republic of Kazakhstan, decree #936 as of 23 September 1993, the following amendment was in introduced into the previous decree: "e" production of geophysical investigations, geological exploration and mining of hydro-carbon raw materials with taking into account ecological conditions".
- In 1993, the new company – "Kazakhstancaspishelf" (KCS) was established.
- In 3 December, 1993, the new International consortium on Caspian Sea was established. It comprises the KCS as an operator and Agip, British Gas, Mobil, BP/Statoil, Total, Shell.
- In accordance with the Agreement on Production Sharing that was signed in November 1997 between the Government of the Republic of Kazakhstan and foreign oil companies, the new operating company was established, which became responsible for boring on the Caspian Sea shelf.

Situation with prevention of oil spills on the sea

- In accordance with the Law "On Emergency Situations of Natural and Processing Character", organizations, irrespective of their forms of ownership and departmental belonging, are obliged: to plan and conduct measures for increasing the stability of their functioning and employees' and population's security; conduct protecting measures, rescue, restoring and other urgent work for liquidation of emergency situations on departmental units and territories as the plans set.
- Oil companies are required to develop their own plans and actions in responding on oil spills and adopt them with inspecting authorities of Kazakhstan.
- Oil companies are responsible for prevention of spills, their quick liquidation, if it happens, softening their negative effect on environment, compensation of damage caused to nature and population.
- The companies, which provide oil transportation and have relevant licenses given by the state authorities, are responsible for any oil spills during oil transportation.

The main problems in responding to emergency of oil spills on sea

- No developed plans of actions of the Operating Company in case of open oil and gas gushers and other accidents.
- The Consortium of Oil Companies do not completely solved organizational, financial, technical problems in case of oil spills.
- No plans of use of equipment, facilities and specialists of foreign firms as well as use of assistance of other countries in fighting against oil spills and it evaluation.
- No regional services of prompt respond in case of emergency situations on sea that are provided with special facilities, boats, and other equipment.
- The existing legislation does not completely regulate:

✓ Actions of oil companies, central and local executive bodies, other departments and organizations in case of oil spills;

✓ Liabilities of parties, which are required to provide accident-free functioning of oil wells on sea;

✓ Joint actions and collaboration of states and companies in case of cross-boundary oil spills;

✓ Procedures of operating notification of the Government and other neighbor countries;

✓ Principles of quick custom control of emergency equipment that is crossing the boundaries of the Caspian Sea states;

✓ Responsibility of companies for the expenses on cleaning and compensation of damage.

Slide 8

Recommendation on improvement of the situation

1. Conclusion of two-party agreements or multilateral agreements between the Caspian Sea states on increasing the efficiency of collaboration in case of emergency caused by oil spills on Caspian Sea. Establishment of regional cooperation between state bodies on emergency prevention and liquidation.
2. Development of efficient mechanisms of mutual assistance in urgent mobilization of emergency equipment for liquidation of spills.
3. Development of general principles of control and production monitoring of sea oil operations, prevention and liquidation of oil spills, evaluation of background and effect on environment.
4. Definition of responsibilities, including financial one, at liquidation of spills, between competent sate bodies and oil companies.
5. Development of the National Plan of emergency respond in case of conducting of oil operations on sea.

- The National Plan should include probability risks in case of conducting of oil operations on sea, role and responsibilities of the Government, state authorities and companies, at each step of development and liquidation of emergency situations.
- The National Plan should reflect:

✓ The most vulnerable off-shore areas of Caspian Sea, that should be protected in first turn at oil spills;

✓ Acceptable criteria of use of dispersents;

✓ Responsible persons in the Government and state authorities for coordination of work of companies in case of oil spills;

✓ Items for personnel training at competent state bodies to the methods of prevention and liquidation of oil spills on sea.

6. Requirement of establishment of specialized rescue services for prompt responding to oil spills at North Caspian Sea.

December 10, 1998

CASPIAN ENVIRONMENT PROGRAM[1]

Background

The Caspian Environment Program (CEP) was launched in April, 1995 at the initiative of the Caspian littoral states[2] with a Joint Mission by the World Bank, the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP) to the region. The European Union/Tacis programme also participates in the CEP with significant support for technical assistance and project preparation. The overall goal of the Caspian Program is to promote the sustainable development and management of the Caspian environment, a major and unique ecosystem under threat from pollution and loss of biodiversity. The Caspian governments and international partners also identified the following subsidiary goals:

- Understanding and learning to live with the Caspian water level fluctuations;
- Abatement of existing and prevention of new types of pollution and deterioration of the Caspian environment and its resources;
- Recovery and rehabilitation of those elements of the Caspian environment (including biological diversity) that are degraded and that still have the potential for recovery;
- Long term sustainability of environmental quality and resources as assets for the present and future human populations of the region.

Main Program Components

- Coastal Zone Management
- Water Level Fluctuations
- Combating Coastal Desertification and Land Degradation
- Pollution: Monitoring, Abatement and Control
- Emergency Response
- Protection of Biodiversity
- Sustainable Management of Fish Resources and other Bioresources
- Legal, Regulatory and Economic Instruments
- Sustainable Human Development and Health
- Data and Information Management
- Public Awareness
- Development of a Regional Convention on Environmental Protection and Bioresources Management
- Priority Investment Portfolio Preparation
- Development, endorsement and execution of a Caspian Environment Strategic Action Plan

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1 Prepared by the World Bank, one of several international organizations participating in the CEP. Other major CEP partners include UNDP, UNEP and EU-Tacis.

2 Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan.

A listing of Caspian National Focal Points and the points of contact at each of the participating international organizations is attached for reference.

1998 Developments

Tacis Caspian Programme. The European Union's Tacis Programme has allocated approximately ECU 2.5 million for the first two-year phase of its support to the CEP to help establish on CRTC in each of the four Tacis Caspian countries of operation, and to start up the Program Coordination Unit. Tacis is also contributing to the identification and preparation of PIP portfolios. Tacis participation in the CEP is largely managed via a contract with Lahmeyer International that became effective in January 1998. Tacis has also approved a second tranche of 3MECU for the further implementation of the CEP. The Tacis Phase 2 will have largely the same objectives as Phase 1, but more emphasis will be put on pilot projects and demonstration activities on how to practically improve the environment around the Caspian. Phase 2 is planned to start mid-1999.

Caspian Environment Program Steering Committee Meeting. The five Caspian states (Azerbaijan, Iran, Kazakhstan, Russia, Turkmenistan) and international organizations (World Bank, Tacis, UNDP, UNEP, and other UN agencies) met 2-3 May 1998 in Ramsar, Iran, and reached decisions on a number of key points. The countries:

- Adopted a final version of the Concept Paper as the organizational framework for the Caspian Environment Program

- Decided on the location of the Program Coordination Unit: Baku for the first four years, then Iran for the next four years

- Decided on topics and host locations of nine Caspian Regional Thematic Centers as follows:

Azerbaijan	pollution control/data management (also hosts the PCU)
Iran	ICZM, emergency response, pollution monitoring
Kazakhstan.	biodiversity, water level fluctuations
Russia	fisheries/bioresources, legal/regulatory
Turkmenistan	desertification, sustainable human development/health

- Adopted the draft GEF Programme Brief as the technical basis for implementation of the Caspian Environment Program

PCU and CRTCs established. With assistance from Tacis, the PCU has been established in Baku and CRTCs addressing desertification (Turkmenistan), pollution control (Azerbaijan), and sustainable management of fisheries resources (Russia) opened. The fourth Tacis-supported regional center, to address water level fluctuations (Kazakhstan) is expected to become operational by the end of 1998. The World Bank and UNDP will assist Iran in the development of workplans for the themes hosted in Iran (integrated coastal zone management, emergency response, pollution monitoring), which will be supported with GEF project funds. The GEF grant will also contribute to CRTCs addressing biodiversity (Kazakhstan) and legal/regulatory issues (Russia). Funding is being sought to support he human health CRTC in Turkmenistan. Contact information for the PCU and first CRTCs are provided below.

GEF Proposal Approved. UNDP worked together with the Caspian states to prepare a proposal for a grant for the Caspian program under the GEF international waters program. The proposal was approved in October 1998, with a planned start date in Jan-Feb 99. The grant in the amount of approximately $7.6 million has been approved by the GEF Council to support program activities, start-up of five Thematic Centers, and continued funding for PCU operations over a three-year period beginning in early 1999.

Ecotoxicity study. As an outcome of the Bio-Resources Network Workshop held in November 1997, a grant in the amount of $994 thousand has been obtained from the Japanese government through a World Bank trust fund to support a regional study to examine concentrations of contaminants in the top predator species (sturgeon, seals, bony fish) in the Caspian. Detailed planning for the study is scheduled begin in the first quarter of 1999 with a workshop of participating Caspian and international scientists.

Azerbaijan Urgent Environmental Investment Project. The Bank and Azerbaijan negotiated and approved a five-year $24.5 million ($20 million IDA credit) project to construct a sturgeon hatchery on the Kura river, clean up mercury contamination in Sumgait, address onshore oil field contamination of soils and surface and groundwater on the Apsheron Peninsula, and strengthen environmental management capacity. Project start-up began in November 1998.

Project Identification begun in Russia and Kazakhstan. Initial project concepts related to sturgeon recovery and prevention and clean up of pollution related to the oil industry have been discussed with local experts and government authorities in Kazakhstan and Russia.

Regional Workshop on Off-shore Oil Spill Prevention and Response. At the request of the Minister of Ecology of Kazakhstan and as a follow-up to the conclusions of the May 1998 CEP Steering Committee meeting held in Ramsar, the Bank and other international partners agreed to organize a Caspian Regional Oil Spills Prevention, Preparedness, and Response Workshop, held December 10-12, 1998 in Almaty. The objective of the workshop is to strengthen cooperation between the Caspian governments and oil companies, and to help identify useful future activities for improved environmental management in this sector.

Developments in 1997 and Earlier

Bio-Resources Workshop. In November 1997, a small number of Bio-Resources Network members met together for the first time in a workshop to share information regarding threats to Caspian Bio-diversity and identify preliminary pilot projects to be carried out and/or coordinated by Bio-Net members. They also developed input to the CEP Bio-Resources and Biodiversity Thematic Centers work programs and defined next steps for the Bio-Net. The papers presented at the meeting have been compiled and published as workshop proceedings.

Progress on a Framework Convention for the Protection of the Marine Environment of the Caspian Sea. UNEP has convened two meetings (in December 1995 and November 1996) to examine legal and institutional issues related to the Caspian, and to facilitate development of a Framework Convention for the Protection of the Marine Environment of the Caspian Sea. The next meeting is planned for early-mid 1999.

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II. New Oil & Gas Developments, the Legal Aspects of Oil Spills, and Approach to Effective Response

INTERNATIONAL SEMINAR
Prevention and reaction on oil spills in the Caspian sea

REPORT
Projections of Oil and Gas Industry Development Key Problems and the Ways of Solving Them

Vice-minister E.Dosaev

Mr.(Mrs.) Chairman! Dear Ladies and Gentlemen!

First of all, I would like to welcome the participants of the international seminar on the problems of oil spills prevention, prevention of emergencies and to thank for the invitation and the opportunity to make a report.

In my report I'd like to describe the perspectives of the petroleum industry development, the key problems, the measures which the Ministry of Energy, Industry and Trade is undertaking to solve these problems.

The Republic of Kazakstan has significant reserves of oil and gas. Explored reserves of industrial (commercial) categories throughout 202 oil and gas fields comprise 2,2 bln tons of oil, 0,7 bln tons of natural gas liquids and 2,3 thrln m3 of gas. Projected resources of hydrocarbons in the Republic, according to different estimations, are about 7 bln tons of oil and 7,5 thrln. m3 of gas. Potentially, the richest is the Precaspian valley together with the aquatory of the Caspian sea, where unexplored resources of oil equal to nearly 94%, natural gas liquids - 97%, free gas - 95% of total resources of hydrocarbons of Kazakstan.

Great projections of oil and gas reserves increase are associated with the development of the Caspian sea. The Caspian sector of Kazakstan has the area about 100 000 m2. Since 1994 to 1997 the shareholders of OKIOC company (Offshore Kazakstan International Operating Company, whose shareholders are Adgip , British Gas, BP, Inpeks, Mobil, Philips, Shell, Statoil and Total) were conducting seismic surveys of North Caspiy. Specialists calculated that there is 20% of probability of finding commercial reserves of oil, but the only way to prove it is wildcats drilling. In the northern part there is a big structure Kashagan found, the reserves of which may increase the reserves of the field Tengiz.

The structures of the Southern Caspiy have significant perspectives, being, probably, the analogies of the greatest fields Uzen, Zhetybai, Dunga due to the increase of thicknesses of productive horizons of Mangyshlak and the continuation of Buzachinsky group of structures and fields in the sea.

However, the development of potential resources of oil and gas in the country is complicated by 2 main factors which demand significant capital investments.

First of all, almost 50% of remaining reserves of fields under development (393 mln. tons out of 789 mln. tons) refer to difficult for mining. At the same time, the major part of fields is in the stage of declining recovery.

Secondly, the main amount of projected resources (86%) of oil and gas is in deeply laying undersalt sediments of Precaspian valley with complex collecting characteristics of rocks containing sulphuretted hydrogen and carbonic acid gas in associated gas of oils. Moreover, nearly half of the projected resources are located in the aquatory of Caspiy. Potential opportunities associated with the development of sea

fields demand great investments. According to foreign experts' estimations, total capital costs will come to 160 bln. US$, out of which 10 bln. $ will be necessary for the initial stage of development and appraisal of fields. By the moment, international companies have invested more than 2bln. US$ into oil and gas complex in Caspiy.

It is supposed to start drilling geologic exploration surveys in the year 2000 by efforts of OKIOC. It is desirable to have the issue about the Caspian sea status settled the next year, the uncertainty of this point is a hazard for investments into the development of the Caspian region. Though there are some pushes forward in this area. The Agreement between Russia and Kazakstan about the division of the Caspian sea bottom alongside the middle line is signed.

After the year 2005 the commercial development of the Caspian sea shelf will start. And here there is one more burning problem arising, the problem of transporting Caspian oil into international markets. At present, export of oil from Kazakstan is carried out, mainly, through oil pipeline Atyrau-Samara and, farther, by the pipeline system of Russia, which limits (quotes) the volume of Kazakstan transit. The richest oil reserves, with the most favourable conditions of their development, will not have value unless there is non-interrupted supply to the customers. That is why the development of export pipeline system in Kazakstan is one of the main conditions of the intensive development of the petroleum industry. Due to this, the project «Caspian Pipeline Consortium» is the greatest priority for the country. At the beginning of the current year Kazakstan fulfilled its obligations, transferring its assets of ... km long to CPC as the contribution to the Charter fund of the Consortium. By now, actually all preparatory works and projecting surveys have been completed. The pipeline is planned to be over 2,5 years later. It is assumed that 2,5 bln. US$ will be spent for this. However, already in the nearest 7-10 years the present capacities of pipelines, including even CPC, will become not enough for the export of oil produced, which will restrain its production in Kazakstan. And already today we face this problem. Recently, in the frames of the project Baku-Dzheikhan there was the agreement gained with Turkey, Azerbaidzhan and Georgia about transporting oil through the port Aktau to the port Dzheikhan (the Mediterranian sea). And the major thing is that the sourse of financing was defined. For the reconstruction of the port Aktau the company «Shevron» will invest about 80 mln US$. Existing pipelines will be reconstructed and new ones will be constructed throughout Georgia and Azerbaidzhan. The other direction of oil transporting is the Eastern one - through the territory of the country to China. The Chinese side, during the recent visit of the Prime Minister of RK to China, admitted the readiness to continue works on this project. At the moment, the Project is on the stage of the feasibility study preparation. We also do not forget the traditional way of Kazakstan oil export through the pipeline system of Russia. The project on increasing the passing capacity of the pipeline Atyrau-Samara up to 15 mln. t/ year (now its maximum capacity is 12 mln t/y) does not need big investments - about 22 mln. US$, and is one of the most realistic projects. As it is evident, this year we defined the main directions in the development of pipeline transport. There is no that very dispersion in the construction of new pipelines, which we still had at the beginning of this year. The volumes of export supplies of oil by railway and sea increased. Especially successful in oil export by these ways is the joint venture «Tengizshevroil».

Refineries of the Republic of Kazakstan also have plans about updating, reconstruction and enlarging of their productions. Shymkent refinery, with its own efforts, is completing the construction of the catalyst cracking complex, which will let 1 mln. tons increase of light oil products output. The reconstruction of Atyrau refinery, the oldest one in the country, is needed very urgently.

But these are the problems and tasks which will be implemented in the nearest future. And today, due to familiar circumstances in the oil market, the enterprises of the industry are actually struggling for survival, for getting, at least, minimum returns. You all know, that caused by the crisis of 1992 the decrease of volumes of oil and gas production commenced; starting with the year 1996 when oil and natural gas liquids production totally equalled to 23,3 mln. tons , some recovery of the industry started. 25,7 mln. tons were recovered in 1997, this year it will be 26 mln. tons. On the whole, in the Republic the increase of the production was provided by Tengizshevroil, Karachaganakgasprom, Hurricane-Kumkol- Munai. That is connected with the implementation of the petroleum industry privatization programme. At present, as you know, the majority of enterprises of the industry has been privatized .

The fall of world oil prices this year, almost 2 times, introduced its corrections into the oil market situation in Kazakstan, which had started to improve. Because of the Russian crisis and non-convertedness of the Ukrainian currency, practically the export of oil to CIS countries is folded. During the year the stock-holding company «Transoil» (Transneft) not once limited the work of its terminal in Samara because of overloaded collectors. On the edge of stopping there were many fields of the Republic (the stock-holding company Mangistaumunaigas, the stock-holding company Uzenmunaigas, a stock-holding company Karazhanbasmunaigas, etc.) On the oil products market of the country, as well as in Russia, complications with the sale of oil products arose. Domestic oil products, because of unbearable taxes (48% of sales prices), became non-competitive in comparison with Russian products, the prices on which sharply fell down.
In this situation the Ministry undertook all measures possible to protect domestic oil and oil products market, such as, reduction of production costs in all enterprises of the branch (reduction of maintenance costs, costs of services rendered, restructuring of their structures, optimization of the personnel, etc.). To control and limit import of oil products tax rates on imported oil products were increased, customs offices' control for the amounts of imported gazoline and diesel fuel was enhanced. Tax rates and different other rates on gazoline and diesel fuel are reducing. Excise rates on crude oil have been reduced. All these measures made it possible, to some extend, to stabilize the financial and economic position of the industry enterprises. Finally, there is mutual understanding in these issues with RK Ministry of Finance, RK Ministry of Income, fiscal institutions of the country.

The Ministry is working with the Ministry of Fuel and Energy (Mintopenergo) of Russia towards increasing quota on oil supplies to far abroad, to increasing volumes of oil supplies on the mutual replacement basis to Pavlodar refinery. In this issue there are already positive results, in the forth quarter of this year the transit quota through Samara for CIS countries and abroad are increased, also oil supply to Pavlodar refinery is increased. It is hopeful that there will be mutual

understanding with the Ministry of Fuel and Energy of Russia about this point the next year.

In this, not a simple situation the enterprizes of the industry are going on working carrying on jobs on modernizing and enlarging production capacities. International companies, in spite of all difficulties, continue working and investing into the petroleum industry of Kazakstan. These are Hurricane-Kumkol-Munai, CAP and Tryton Vuko (Karazhanbasmunai) from Canada. Despite of temporary difficulties and the decrease of returns they continue their activity in our country.

Now, what are we doing in the Caspian sea, and how are we preparing to possible oil spills? As you know, drilling works in the sea have not started yet. Such works must be carried out on special barges for shallow waters. A barge must be unified in such a way that it could withstand storms in summer and ice loads in winter. It needs to be reconstructed so that OKIOC could carry out drilling works following the principle of a «zero kick», which means that rocks and salt slush out of a well will not be thrown into the Caspian sea. They will be kept on the barge and then will be transported onto the coast for processing. These modifications plus many others will provide its safe work on the Caspian sea. At present, OKIOC is completing works on constructing such a barge. It will be the biggest semi-submersible barge in the world (5,5 x 52 x 84m). For all drilling works it is necessary to have the support on the behalf of the fleet and sea vessels. OKIOC started the construction of two new ships-ice-breakers in Finland and three ice tugboats in Holland and also three land-rovers in Canada. These unusual transport means will be, at any time, ready to evacuate the staff. For the case of emergency there will be the aviation support day and night.

At present construction works are taking place to built the necessary infrastructure (sea constructions, transport, coast bases, etc.)

On all stages of planning and in well drilling OKIOC is paying great attention to health protection and safety of its personnel and local population, and also to the environmental protection. Ecological surveys are being conducted, training of the staff, necessary equipment is being bought (bonds, oil collectors). Cargo which OKIOC has will let move necessary equipment to any spot in the Caspian sea where there may be spills. It is projected that Caspiy oil will be the same quality as Tengiz oil.

In case of the spillage, as computer modeling shows, 70% of it will evaporate almost immediately and the remaining oil will evaporate during 4 days, that is why it is doubtful that oil from Kashagan will reach sensitive coast zone. With the help of the computer modeling it may be possible to project where oil, most probably, will flow by streaming, that's why OKIOC will be able to unfold its bonds in such a way so that to prevent oil floating to the most ecologically sensitive zones, such as, for example, reed areas. Probably, in case of big oil spillage, spilt oil will be burnt after the evacuation of the personnel, so that to reduce the consequences for the environment of the Caspiy region.

Prior to drilling OKIOC will provide all the procedures to control open fountain or oil leakage. Also the personnel will get theoretical and practical training.

Besides, OKIOC will get and will be supporting significant insurance for the period of drilling works, including insurance of the third party property, health and pollution, as well as nature restoration works.

We hope that we shall not let significant spills in the Caspian sea. Let's wish OKIOC successful work in exploration of Caspiy, and in case of spills there will be all necessary measures undertaken.

Thank you for your attention.

Elements of Oil Spill Legislation

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December 10, 1998

Introduction

Effective legislation is a critical element in reducing the frequency, magnitude, and impact of oil spill incidents. In fact, effective legislation with appropriate regulations will help ensure the attainment of the Almaty workshop's goals: oil spill prevention, preparedness, and response for the Caspian Sea region.

Most countries have established or significantly strengthened their oil spill legislation only in response to a major oil spill disaster within their territorial waters. Without a major incident, governments tend to maintain the status quo.

In response to the Torrey Canyon tanker grounding and spill off southern England in 1967, which was perhaps the first oil spill incident that received worldwide attention, the international community developed and then adopted two significant conventions: the International Convention Relating to Intervention on the High Seas in Case of Oil Pollution, 1969, and the International Convention on Civil Liability for Oil Pollution Damage, 1969.

In similar fashion, the U.S. Congress passed comprehensive oil spill legislation -- the Oil Pollution Act of 1990 -- in response to the Exxon Valdez tanker grounding and spill in Prince William Sound, Alaska, in 1989. The U.S. Congress had debated the oil spill issue for 15 years, but had not been able to agree on any legislation. It required an environmental disaster to provide the necessary momentum to secure passage for the new law.

And just last year, the United Kingdom passed the Merchant Shipping and Maritime Security Bill, largely in response to the

Braer tanker grounding and spill off the Shetland Islands in 1993. This legislation provides the authority for the U.K. government to implement many of the marine safety and antipollution recommendations made following the Braer incident.

Oil spill disasters often create the impetus for change. They tend to highlight an inadequacy in the current prevention, response, or compensation system, but only after the damage has been done. In the aftermath of a disaster, often the resulting legislation tends to create exaggerated solutions. A proactive approach will avoid the politicized atmosphere following a major spill.

The Caspian Sea countries have an opportunity now to move forward and establish appropriate oil spill legislation and agreements, in advance of an oil spill disaster. The region has an opportunity to compare and contrast laws and regulations used in other parts of the world and to develop legislation specific to the region.

Prevention

The first objective of oil spill legislation is to prevent spills from ever occurring. The spill statistics certainly show the value of oil spill legislation in this regard. Since the United States passed the Oil Pollution Act in 1990, oil spills have decreased dramatically in frequency and magnitude within the United States. As an indicator, the average annual number of oil spills over 10,000 gallons in the United States has dropped by almost 50 percent from pre-1991 levels.

So, prevention seems to work. In fact, prevention is the best form of intervention.

Perhaps the most universal approach in further reducing the spill frequency and magnitude involves the use of both structural and operational measures. These measures will be specific to the potential spill sources, whether barges, pipelines, wells, or storage tanks. Different government agencies may have responsibility for monitoring the various spill sources, as effective oversight requires specialized expertise. For example, in the United States, the Minerals Management Service oversees the wells and offshore pipelines, while the U.S. Coast Guard handles the vessels.

- Structural Requirements. Let's look briefly at the structural requirements for tank vessels in the U.S. oil spill legislation. These requirements will provide some insight into the types of structural requirements possible.

Under the legislation, nearly all tank vessels operating in U.S. territorial waters must be fitted with double hulls by the year 2010. New vessels operating in U.S. waters must be equipped with a double hull; existing vessels with single hulls will be phased out gradually.

In addition, the U.S. oil spill legislation requires the establishment of minimum thickness standards for tank vessel plating. It also mandates that tank vessels and barges be equipped with warning devices that detect tank overfilling.

Each of the other potential spill sources, such as wells and pipelines, has a similarly robust list of required structural

measures. For example, pipelines must have protective coatings to reduce corrosion, and they must be equipped with cathodic protection systems.

Certainly, the Caspian Sea countries should expect and should require that oil companies operating in the region use the best available technologies and practices used elsewhere around the world by those companies.

At the same time, some environmental policy experts have begun to advocate against prescribing the use of specific technologies within regulations, as this prescriptive approach tends to reduce technological innovation. Instead, they recommend the use of performance standards, thereby providing the regulated community with some flexibility in selecting the appropriate technologies for the task.

- Operational Requirements: In addition to structural measures, operational measures have a major potential benefit in reducing spill frequency and magnitude. After all, the human element is a factor in perhaps 80 percent of all accidents. With mandatory training and recertification, along with fatigue prevention measures, operators will make fewer mistakes and will cause fewer spills. Once again, each of the spill sources has a specific set of operational measures.

For example, the legislation might require that, before issuing any merchant mariner's documents or other operating licenses, a country must first review the driving, substance abuse, and criminal records of the applicants. In addition, the legislation might include limits on the number of hours that a

seaman or driller might be allowed to work in any 24-hour period.

Furthermore, preventive measures might include the creation of restricted-activity zones to eliminate certain oil-related activities either during specific seasons or throughout the year. These zones might serve to protect especially sensitive environmental resources.

In addition, the establishment of vessel-traffic service systems can help to reduce the number of vessel collisions, rammings, and other accidents in high-risk areas. Also, the stationing of multi-purpose tugs at strategic locations along the coast can help provide salvage and firefighting capabilities needed to avert a serious accident. And finally, the creation of a sophisticated GIS system to map the locations and other characteristics of underwater pipelines can help avoid possible damage to those pipelines by making vessels and offshore installations aware of the pipeline locations.

- Liability: Perhaps the greatest incentive for preventing oil spills is liability, and the international community embraces the "polluter pays" principle as the foundation for oil spill liability. Countries may differ about the scope of the liability or the limits on the liability, but they do not disagree about the basic principle that, in the event of an oil spill, the polluter must pay the costs and damages involved.

One critical question for any country to resolve is who is responsible for a spill. In the United States, the definition of responsible party includes private owners and operators of oil-carrying vessels, onshore facilities, and pipelines other than

the Trans-Alaska Pipeline. In addition, the definition includes holders of permits and licenses for outer continental shelf tracts where offshore facilities and deepwater ports are located. Although in the event of a vessel spill, the U.S. legislation does not regard the cargo owners as responsible parties, laws of individual states within the United States define both the vessel owner and the cargo owner as responsible parties.

Under the international conventions and the U.S. legislation, the responsible parties are held strictly liable for any response costs and damages incurred, meaning that the responsible parties remain liable even if they were not negligent. The U.S. legislation allows for unlimited liability when a spill occurs as a result of gross negligence, willful misconduct, or violation of federal safety or construction standards. In addition, the limits on liability are broken when the responsible party fails to report the accident or refuses to participate in the cleanup.

In terms of the liability limits, the U.S. legislation places different limits for the various types of responsible parties: $350 million for onshore facilities; removal costs plus $75 million for offshore facilities; and $1,200 per gross ton, or $10 million, whichever is greater, for tank vessels larger than 3,000 GRT; and $1,200 per gross ton, or $2 million, whichever is greater, for tank vessels smaller than 3,000 GRT.

The international compensation conventions and individual national laws may use different liability limits for the various responsible parties, and may include different definitions for

the responsible parties, but a major consequence of the liability coverage in any country is the creation of a major disincentive to spill oil.

In addition, countries often require the various responsible parties to hold insurance, surety bonds, or other financial guarantees equal in amount to their maximum liability limits under the national laws. This provision helps ensure that only parties with significant assets operate in the country.

When we look at the scope of the liability coverage under the various national and international laws, we encounter serious controversy in the realm of environmental damages. All liability schemes make the responsible parties liable for oil removal costs and economic damages, such as losses of revenues, profits, and earning capacity due to the spill, as well as damages to personal property.

However, the extent of liability for environmental damages varies dramatically under the different laws. While the U.S. legislation emphasizes liability for natural resource damages, the international conventions have traditionally not included natural resource damages as a compensable damage. The international conventions have always provided for claims of environmental damage if and only if the claimant has sustained an economic loss. Two years ago, when the protocols to these conventions took effect, they changed the environmental damage coverage to those costs associated with reasonable measures to restore the environment.

As the public trustee for the damaged natural resources,

governments should receive appropriate compensation for those damages. It is definitely true that quantifying natural resource damages is a difficult task, but the damages are nevertheless real. In the U.S. legislation, the compensation allowed includes the restoration, rehabilitation, and replacement costs, and the costs of assessing the damages.

One provision within the U.S. legislation has generated extensive international debate: compensation for the reduction in the "passive use" value of the damaged natural resources. A natural resource's passive use value is the value that people attach to the resource even if they do not actually use the resource. Passive use values include the value of knowing that a resource will be available for later use.

While some experts believe that this approach has a sound theoretical basis, it is very difficult to implement even in the United States. At this point, I doubt that other countries will adopt this provision, given the inherent problems in undertaking the assessment process and the potential for extensive litigation about the results.

In addition, oil spill laws often impose penalties and fines on those parties that violate the regulations -- perhaps for failing to notify appropriate government officials about a spill or failing to comply with the facility's contingency plan. If these penalties and fines are large enough, they represent yet another disincentive to spill oil.

Preparedness

Now let's move from prevention to preparedness. On the assumption that oil spills will continue to occur even with effective prevention measures in place, nations need to improve their preparedness for responding to actual spills.

Spill preparedness has become a major part of oil spill legislation in many countries. By requiring contingency plans, equipment stockpiles, and training exercises, countries have enhanced their ability to respond effectively to oil spills. In addition, this state of readiness tends to create a heightened awareness about oil pollution risks and may, in fact, help to prevent spills.

o OPRC Convention: While the United States responded to the Exxon Valdez incident with the Oil Pollution Act of 1990, the international community through the International Maritime Organization responded with the International Convention on Oil Pollution Preparedness, Response, and Cooperation, 1990. This Convention, which became international law in 1995, is designed to increase the preparedness for responding to oil spill incidents, improve the actual response to oil spills, and promote international cooperation in this field. In general, the Convention establishes a global framework for international cooperation in combatting major incidents.

This Convention represents a new direction for the International Maritime Organization, as the provisions apply to incidents that involve not only ships, but also offshore units and oil handling facilities, such as oil terminals and pipelines.

Under the Convention, countries have an obligation to establish a national system for responding promptly and effectively to oil spills.

The Convention provides for each country, either individually or through bilateral or multilateral cooperation, to preposition an appropriate stockpile of spill response equipment, and to establish a training program for spill response personnel. In addition, the Convention requires countries to have oil pollution emergency plans on board their flag ships and their flag offshore units.

The Convention develops specific oil pollution reporting procedures for vessels and aircraft. Each country will require its ship masters, offshore platform managers, and civil aircraft pilots to report any oil spill that poses or may pose a threat to the marine or coastal environment. Whenever a country receives an oil pollution report, the Convention requires that country to assess the incident and to report the incident to all countries that may be affected by it.

Perhaps the Convention's most important provision deals with international cooperation in responding to a spill. In the event that a spill overwhelms one country's spill response capabilities, the Convention calls for other countries to provide advisory services, technical support, and equipment for combatting that spill. The Convention also calls for the countries to minimize customs delays for spill response equipment moving across international borders during a spill emergency.

- Regional Agreements: While the OPRC Convention sets the

stage for international cooperation in spill response, regions around the world have already developed multilateral and bilateral agreements for oil spill preparedness and response. Since winds and water currents do not know national boundaries, oil spills have serious potential for causing transboundary pollution. Depending on the prevailing winds and water currents, as well as a spill's location and magnitude, spilled oil can be carried from one country into a neighboring country and then beyond. In the Caspian Sea, for example, spilled oil from a major well blow-out could eventually impact all five of the littoral countries.

The first regional oil pollution agreement was the Bonn Agreement for the North Sea and the English Channel. It was established in response to the Torrey Canyon tanker accident in 1967, and it came into force in 1969. All of the nations with a North Sea coastline signed the Bonn Agreement.

A major impetus in the development of regional pollution agreements has been the United Nations Environment Programme and its Regional Seas Programme, which was established in 1974. The Regional Seas Programme actively promoted a regional approach to controlling marine pollution and managing marine resources. It also encouraged regional cooperation to increase national capabilities in responding to oil spills and other marine environmental emergencies.

Currently, as a result of the Regional Seas Programme, at least 12 areas around the world have regional action plans in operation. Among the regional action plans is the Bucharest

Convention, which covers the Black Sea and which was adopted in 1992.

As the provisions of these multilateral agreements vary among the regions, let's look at the Bonn Agreement as an illustrative example. Although originally designed for dealing with vessel spills, the Bonn Agreement was broad enough to encompass spills from offshore installations. Among its provisions, the Bonn Agreement requires the contracting states to exchange information on national contingency plans, oil spill notification procedures, and developments in oil spill response techniques.

The Agreement divides up the North Sea into eight zones for monitoring and response purposes, and it assigns supervisory responsibilities for each zone to one of the contracting states. This zone approach was designed to avoid duplication of effort and to provide an initial framework for a single command structure. In the event that a spill takes place in a particular zone, the responsible country must monitor the slick and provide status reports to the other countries about the spill's movements and any response measures undertaken.

In addition, under the Bonn Agreement, a country in need of assistance in dealing with a spill may request assistance from the other contracting countries. And those countries must provide whatever assistance is possible at that time. The country requesting assistance must pay the assisting country the cost of the help provided.

Many of the regional agreements also involve the

establishment of an organization to oversee the implementation of the agreement. The existence of these organizations serves to promote cooperation among the contracting states in the region and to facilitate information flow in the event of a spill.

An effective regional agreement will also help ensure that the participating countries take the necessary steps to facilitate the arrival, use, and departure of ships, aircraft, equipment, and personnel involved in an oil spill response. In addition, under the regional agreement, participating countries will take action to waive customs and excise duties on equipment and material provided on a temporary basis.

As with national contingency plans, the primary challenge to regional agreements is implementation, and implementation requires commitment among all the contracting states in terms of resources. A single uncooperative country can unfortunately render a regional agreement ineffective. However, these regional agreements help prepare the contracting countries for responding to a spill and help resolve in advance many of the important response issues for the region.

- National Contingency Plans: While the regional agreements set the stage for preparedness at the international level, each individual country needs to establish its own national contingency plan within the framework of the country's oil spill legislation. This national contingency plan will provide each country with the structure, strategic direction, and tactical approach for responding to oil spill incidents. It is the ultimate tool in preparing for an actual response.

At this workshop, we will hear about contingency plans in several presentations, and so I do not want to discuss the composition of an effective contingency plan here. However, I thought that I would mention some of the critical issues involved in developing a national plan.

First, oil spill legislation must identify the national authority with responsibility for overseeing the implementation of the national contingency plan. In most countries, a single agency has that authority. In Norway, that agency is the Norwegian Pollution Control Authority for marine spills; in the United Kingdom, it is the Maritime and Coastguard Agency; and in the United States, it is the U.S. Coast Guard.

Second, countries have found that spill response management by committee is difficult, if not impossible, to execute. As a result, most national contingency plans not only identify a single national spill authority but also specify a single on-scene coordinator at a spill. Nevertheless, contingency plans often establish a committee structure to provide input to the on-scene coordinator during the spill itself and to decide upon strategic issues for general use during any response. In addition, oil spill legislation often requires the responsible party to designate one individual to serve as the responsible party's coordinator for the spill response.

Third, oil spill legislation must reflect the country's fundamental response philosophy: whether the government wants to lead the response and bring in industry as necessary, or whether the government wants to provide an oversight function and allow

industry to lead the response. Both the United States and Canada have decided to give industry the initial opportunity to undertake the response; however, if the government finds that industry is not performing effectively in a response, it will assume control of the operation.

Fourth, the national contingency plan must set forth the country's attitude towards various response strategies and techniques. For example, it must deal with the issue of mechanical containment and recovery versus dispersant usage. In the United Kingdom, dispersant usage is the primary response option, whereas in the United States and Norway, mechanical containment and recovery have first priority, although dispersants have recently gained considerable support.

Fifth, in regions with minimal equipment resources at present, oil spill legislation needs to indicate whether the government will purchase and maintain significant equipment stockpiles, or whether the government will rely primarily on industry's equipment stockpiles and purchase only limited government equipment. By requiring individual vessels, platforms, and onshore facilities to develop their own contingency plans and to provide for their own response capabilities, governments can leverage off industry's resources.

After all, individual facilities will need resources on site to deal with relatively small spills, and will need access to local or regional equipment and personnel in the event that the individual facility cannot handle the spill response. In the event of a massive spill, the facility will require so-called

Tier 3 resources from outside the region to supplement the spill response.

Sixth, the country's oil spill legislation must resolve the issue about whether reasonableness is regarded as a critical measure for any response actions undertaken. In the international conventions and hence the national spill legislation of ratifying countries, compensation for cleanup costs is determined by whether the measures undertaken were reasonable. As a result, response actions in the United Kingdom tend to be much more cost-conscious than those in the United States, with its "bigger is better" approach. Since the passage of the Oil Pollution Act of 1990, the U.S. policy toward spill response has become "shoot first, ask questions later." In regions with limited resources, however, a reasonableness doctrine in spill response makes common sense.

And seventh, countries must require periodic training programs and spill exercises, whether in the field or on a tabletop, to test the ability of industry and government to implement the national, regional, or local contingency plan. These exercises will lead to an increased awareness about ways to improve the response. They will also help assure that the equipment remains in working order and that the spill responders know how to deploy the equipment. In addition, these exercises will bring industry and government together on a regular basis so that they can form a cohesive team in an actual response.

Response

In addition to prevention and preparedness, the other major component in oil spill legislation involves the response itself. Since the national contingency plan specifies the roadmap for the response, oil spill legislation must identify the mechanism for the government to pay for the response once the spiller's liability limits are exceeded, or if the spiller's identity is not known, or if the spiller's response is deemed ineffective. In addition, the legislation must identify a mechanism to compensate in a timely manner the spill victims for damages incurred during the spill itself.

Earlier, I had discussed the doctrine of "polluter pays" in terms of oil spill damages; however, another concept known as "potential polluter pays" deserves attention as a way to assist countries to develop their spill response capabilities as well as pay for any needed response actions and provide damage compensation. Under the "potential polluter pays" concept, industry pays into an oil spill response and compensation fund, and the national governments use the money raised specifically for spill-related activities, including the purchase of response equipment.

In the United States, the oil spill legislation provides up to $1 billion per spill for costs and damages beyond the spiller's liability limits. This money has been generated through a five-cent-per-barrel tax on oil delivered to U.S. ports. Other countries, such as Canada and Finland, use the same model to raise funds, placing levies on oil imported and oil transported.

In the case of the Caspian Sea region, the international compensation conventions may not cover any vessel spills, and those conventions certainly do not cover spills from wells, pipelines, or onshore facilities. As a result, each country needs to develop a fund to both support its preparedness and response activities, and provide a timely compensation mechanism.

Whereas the United States, Canada, and others have generated their funds with taxes on oil imported and transported, the Caspian Sea nations could levy a tax on oil exported. Each country could create its own fund, and if a regional capability were established, each country could pay into that fund on the basis of its prorated share of the total amount of oil produced in the region.

Either leveraging off industry's resources or raising a spill fund provides a way to implement oil spill legislation. However, oil spill legislation without a provision for funding is destined for failure.

In summary, although spills are low-probability events, they can and do happen. But don't wait for the big one -- legislate now, or in advance of legislation, create mechanisms for working with industry to provide interim solutions.

Overview On The International Oil Industry Approach To Oil Spill Prevention, Preparedness And Response

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Introduction

Environmental issues have long been recognised as international problems that do not respect borders and cannot be handled at a country level, without considering impacts on other nations, and territories. The environmental issue of preventing and responding to oil spill incidents crosses international boundaries and effects all countries. Over the next 20 minutes I will attempt to summarise the international oil industry approach to response planning that has developed over 30 years and has, more recently, evolved over the past 10 years into a consistent approach.

IPIECA in profile

International environmental problems require co-operation between governments, along with co-operation between industry and government, to adequately address issues.

In 1972, the United Nations established the United Nations Environmental Program (UNEP) and industry followed in 1974 with the formation of the International Petroleum Industry Environmental Conservation Association (IPIECA). IPIECA serves as industry's principal channel of communication with the United Nations. Based in London, with a small secretariat, IPIECA currently has four working groups to address key environmental issues of international importance. They include The Climate Change, Urban Air Quality and Emerging Issues Working Groups as well as the Oil Spill Working Group (OSWG) of which I am the current chairman. The group was established in 1987 and serves as industry's focal point for promoting the development of effective oil spill response (OSR) plans that are sustainable and science based.

The OSWG is an international team of experts in the field of OSR. It includes OSR managers from multinational oil companies and key organisations such as ITOPF and OSRL, industry's global response centre, both of whom are contributing extensively at this workshop. Partnership with such organisations that also include the Oil Companies International Marine Forum (OCIMF); the French Research and Experimentation Documentation Centre on Accidental Pollution of Water (CEDRE); and other Tier 3 Response Centres, is vital to the working groups success.

Goal

Many of the international oil industry goals and objectives were developed in co-operation with the United Nations International Marine Organisation (IMO) through industry's contribution to the development of the international Convention on Oil

Pollution Preparedness, Response and Co-operation 1990 (OPRC convention). Unique for an IMO convention was the declared goal of co-operation between governments and the oil and shipping industries in the development of oil spill response contingency arrangements.

This shared recognition by the IMO and industry of the need for co-operative planning and response has become the foundation of the relationship of "working together". In fact, together we have produced a video called "Working Together" that covers the contingency planning process in detail. Unfortunately, we have the video in English, French, Spanish and Mandarin, but not Russian.

Objectives

The objectives of the OSWG are pretty clear. We actively promote the need for all coastal countries to ratify international conventions such as OPRC, CLC, Fund and, MARPOL, of which you will hear more of in the coming days.

These conventions were written with a great deal of industry input and form the basis for any sustainable program.

This is in recognition that in most countries the government will be ultimately in charge of any response to a major incident. Without the framework of legal responsibilities and liabilities provided by accepted international conventions or equivalent national laws to govern response actions, government and industry have historically been unable to work together in a timely or efficient manner, even when specific response plans were developed.

The challenge for international oil spill response planning is not technical issues of what equipment to specify or what is the best organisational structure for a response team.

The real challenge is to convince many countries to make OSR planning a high priority, while recognising that it must compete with such basic needs as human health and welfare.

The model of OSR plans for developed, larger countries, are not readily transferable or appropriate for smaller or non-industrialised countries.

However, international conventions can form the basis of a credible and realistic response plan by assigning responsibility and assure available funds, along with legal regimes, that promote co-operation between countries.

Developing detailed operation plans and purchasing equipment without the firm legal foundation and commitments from both local industry and government has, in the past, resulted in worthless, out of date response plans and stockpiles of inappropriate equipment that are rusting or missing essential components.

I am sure John Ostergaard from the IMO will speak more fully on this subject.

The tiered response concept has been adopted by most organisations as it avoids the unnecessary and inappropriate proliferation of resources.

In effect, the tiered system promotes the need for local response capabilities commensurate with risk at a specific location , while accepting the need for outside support in the event of a larger or remote incident.

The international oil companies continue to promote science based risk analysis and selection of response options, which is often referred to as "net environmental benefit analysis".

In essence, we must all realise that each and every spill is different and therefore it is essential to reinforce the message that no response option should be ruled out in advance and that at all times any response option should reflect the most appropriate environmental considerations.

I look forward to Jenny Baker leading us through this most important subject tomorrow.

The final objective is crucial. In conjunction with IMO we have embarked on a global education program by providing guidance and expertise at the national / regional level in a program referred to as the "Global Initiative".

The aim of the Global Initiative is to promote the setting up of effective and sustainable contingency planning processes for coastal locations around the world. To achieve this, the international oil industry works with governments, intergovernmental entities and local industry to build national or regional capacity.

Global initiative

IPIECA's role is to catalyse and initiate activities at the regional level recognising that involvement of local industry is key to sustained long-term success.

IPIECA's role, jointly with IMO, is therefore to facilitate bringing key players around the same table to discuss national contingency plans

Over the past few years we have held eight seminars at strategic locations around the world. Jakarta, Indonesia for S.E. Asia; Cairo, Egypt for the Mediterranean Coastal States; Caracas, Venezuela for Central and South America; Gabon for West Africa; Bahrain for the Persian Gulf; Curacoa for Caribbean Island States and Hong Kong for Northeast Asia. The final seminar was held in Cape Town in 1996 when, for the first time, we looked to establish specific action plans. We have since been working extensively in Africa in developing national contingency plans.

There have been some notable successes in countries such as Angola, Tanzania, Ghana, Namibia and Mozambique. Using the Cape Town seminar as a model, IPIECA plans to continue with the Educational / Awareness programs.

We are now targeting other parts of the world, such as the Caribbean, Mediterranean and South- East Asia, and will continue the initiative through a series of workshops, similar to this workshop here in Almaty. However, it is recognised that priorities are dynamic and can change rapidly with regional developments.

The purpose of the workshops will be to:

- Communicate a consistent message on what constitutes an effective response to oil spills
- Catalyse the willingness in the country to address contingency planning issues and initiate discussion, with countries, on what needs to be done
- Create links between local companies and between industry and governments and confirm key contacts for the OSR in the country
- Introduce "international experts" to the countries to facilitate further contact as appropriate
- Initiate contact with donor agencies

Follow up to the workshops will be carried out at the national level, within the responsibilities of the local industry and government.

OSWG focal points will be identified for each country to ensure constructive follow-up as needed. IPIECA secretariat will continue to provide a clearing house for requests and follow-up actions, and produce status reports for each country.

In areas of the world with limited industry resources, the GI is striving to link up with donor agencies to help fund the development of national contingency plans. This is best demonstrated by the IMO/IPIECA partnership with the World Bank in the extensive contingency planning project in the Indian Ocean Islands off South Africa, where there is little oil industry presence but a high density of tanker traffic.

Involved parties

This slide illustrates the wide variety of groups that may well be involved in the planning process and response.

All have a part to play, the planning process is inclusive and all should be encouraged to "work together" towards a broad consensus of ensuring a safe, effective response effort ever mindful of environmental protection. Only through constructive debate of all concerned parties can such a consensus be reached.

Tiered response

Therefore, emphasis must be made in ensuring that a flexible approach to spill planning and response is essential.

In simple terms, the principle is having available pollution combating resources identified and available on a scale and timeframe equal to the risk.

The requirements for tier 1 level incidents are of such a nature and size that the local industry is usually self sufficient with their own personnel and equipment and do not need to interact with the government or other industries to mount an adequate response.

The larger or remote incidents typically referred to as tier 2 & 3 incidents require co-operation of both government and industry.

The resource requirements to respond to such incidents are usually several orders of magnitude greater than those needed even for the largest of tier 1 incidents.

In the main a tier 2 response can be dealt with by forming mutual aid agreements whereby the support of others operating in the region can be brought together in an unified response effort.

This I know is the case in the Caspian where an agreement on mutual support multiplies the equipment which would be available to any one company. The Kazakstan Petroleum Association have agreed to describe this as a Tier 2 response arrangement.

In the case of a spill that requires extensive technical expertise and specialist equipment, then industry, through IPIECA, strongly believes in the need to import such equipment and skills from strategically located tier 3 centres that have been set up by industry, globally.

The practice for establishing in country stockpiles with inherent poor maintenance and operational efficiency has proven, in many parts of the world, a very costly mistake.

So, in summarising the tiered response concept it can be best addressed using a firefighting analogy:

Tier 1 - use the nearest extinguisher
Tier 2 - use other extinguishers previously identified in the vicinity
Tier 3 - call in the professional fire-fighters - the fire service

The planning process

So, the planning process is very straight forward following a logical process involving:

- The assessment of risk,
- Identifying typical spill scenarios from small operational incidents to worst case discharges,
- Identifying potential economic, social and ecological impacts. Once this has been established, the need is to then,
- Develop credible response strategies following the tiered response concept,
- Determine a clear response organisation with clear identification of the roles and responsibilities, not forgetting two vital elements of training and exercising the plan. A plan that gathers dust on the bookshelf is next to useless.

Who is responsible?

Over he next few days we shall all have the opportunity to collectively discuss and review the whole question of developing effective emergency response plans. However, in all our deliberations we must be sure as to:

- "who is driving the planning process".
- "who has overall responsibility for the national plan"
- "who is command and control of the response"

It is normally the lead agency designated by the national government that has overall responsibility for the development, maintenance and activation of the National Plan, as well as command and control of the response.

This is normally a government agency at the national level and may be within the departments of transport, environment, coastguard .

Normally different agencies / organisations will be responsible for different aspects of the response and therefore will be assigned different responsibilities within the contingency plan.

The important issue is to ensure that roles and responsibilities are clear as their understanding and practice are fundamental to both the planning process and operational response to spills. To avoid chaotic, ineffective action during incidents everyone's resources must be well co-ordinated and working to the same objectives. Command and control elements must also be clear to all involved.

Finally, essential to consensus is documentation, which serves to promote a consistent message and, in many cases, reminds industry itself what has been agreed to.

The IPIECA reports series provide such documentation and education material for government and industry. The basic design of the report series recognises that the fundamentals of a good OSR plan do not require a lengthy document.

The message needs to be concise and clear on the basic principles with emphasis on communicating to the policy makers and not to the technical experts.

Currently, IPIECA has published eight reports and co-produced two reports with the IMO.

One report is a guide to contingency planning for oil spills to water which emphasises the tiered response approach. Other reports cover the biological impacts of oil and the role of dispersants.

The joint reports cover sensitivity mapping, an essential component of the planning process, and a guide to oil spill exercise planning. I have brought two complete sets of the reports series for anyone to look through.

These reports represent industry's consensus developed over the past ten years and should be the basis for any recommendations to governments developing national plans.

I look forward to being with you over the next three days and participating in the various sessions.

Oil Spills Prevention, Preparedness and Response Workshop
Almaty, Kazakhstan
December 10-12, 1998
Presentation by Commissioner Michele Brown
State of Alaska, Department of Environmental Conservation

The State of Alaska in the US had virtually no oil management program when the first big discovery of oil occurred on the North Slope in 1968. Only then did we begin to plan for spill prevention and response.

Development of Alaska North Slope oil required an 847-mile pipeline to carry oil to a tidewater port that could handle tankers. The land the pipeline crossed is owned approximately 50% by the federal government, approximately 45% by the State of Alaska, and the remaining 5% by other private interests. It took eight years to build the pipeline that crosses 3 major mountain ranges and 6 major rivers. Half is above ground; the other half below. The pipeline was designed to carry 2M barrels a day. Oil began to flow in 1977. The amount of oil has fluctuated over time and now flows at the rate of 1.2M barrels a day.

The development of the legal framework that governed design, construction, monitoring and operation of the pipeline occurred simultaneously with construction. It was also during this time when the initial laws for oil spill prevention, contingency planning, and response were passed.

In 1989, the Exxon Valdez spilled 11 million gallons of crude oil into Prince William Sound. This was the largest oil spill in the history of the United States. 1500 miles of shorelines were oiled when the oil spread over an area equivalent to much of the US' eastern seaboard.

Environmental impact and wildlife losses were extremely high, as most people know. But, there were other very serious losses that are generally less known. For instance, fisherman and the tourism industry suffered devastating economic losses. There were intense social repercussions that reverberated through the communities directly affected by this spill. These ranged from disaster trauma, to family breakdowns due to the frustrations of out of work fisherman, to an almost collapse of the towns' labor forces as grocery store and child care workers left their jobs to seek work on the spill response efforts.

The damage caused by the Exxon Valdez oil spill, and the problems encountered in achieving an effective response, precipitated a major overhaul of both state and federal law for spill prevention and response. As we approach the Exxon Valdez 10-year anniversary, we are still working to put in place changes made to Alaska's spill prevention and response system. [Handout]

And that is not surprising since a comprehensive spill prevention and response system is not developed overnight. Nor should it be. It must be carefully thought through at every step, and it must remain a system of continuous improvement, always re-evaluating, always challenging ourselves to go further, always vigilant. I would also point out that we did not have to coordinate with other countries in putting our program together. We only needed to coordinate the government efforts of a single country at the local, state and federal levels, and that is hard enough. Your task is more difficult.

As a result of our experiences, I believe that we have one of the best oil transportation and spill response systems in the world. But we are far from finished. For example, we've been working with industry to build the world's largest, state of the art tractor tug escort vessels for the Prince William Sound tanker trade. The first will arrive later this winter. We've just completed, with industry and over a hundred organizations, an oil spill drill for a 300,000 barrel spill scenario where equipment was actually flown in from around the world and deployed to test how long it would take.

I am sorry that I don't know more about each of your laws and oil management programs, but it seems that some of you are at the same place Alaska was when we first saw oil development potential. I hope that by describing some of what we have learned will be interesting and useful for you.

To share our experience, I'd like to address 3 main areas:

- One, the need to make fundamental policy choices on the roles, responsibilities, and liability for all that are involved in oil development and response, and how to fund that management program. Those decisions will set the stage for all that follows.
- Two, the critical elements of programs for prevention, preparation, and response.
- Three, the importance of forming collaborative partnerships among governments, industry, and citizen groups in order to have a successful program.

Responsibility, Liability, and Funding

The first thing to decide upon are the roles and responsibilities for government, for industry and even for citizen groups. The fundamental requirements of liability and responsibility must be defined. In Alaska, the operator or spiller has the fundamental responsibility to respond to spills. The spiller is also responsible for paying all costs associated with the cleanup. Because of this responsibility, anyone shipping oil in Alaska must demonstrate in advance that it has a spill contingency plan and the financial resources in place to carry out an effective response. Without these, no oil exploration, production or shipping can occur.

The government's role in the US at both the state and federal level is to set spill response preparedness standards, supervise industry's compliance with standards, and oversee the spiller's response and cleanup efforts. The government can take over the cleanup if it is inadequate or if the spiller does not respond. Other countries mount a government response or use a third party to carry out response rather than the spiller. In the US, we only intervene if the spiller fails, but we are on site working with the responders and evaluating conditions during an event response.

Because responsibility rests with the industry in our system, so does liability for damages. Alaska has what is called strict liability. It means that anyone listed in the law – such as the oil owner or shipper – is liable for all damages, without regard to fault. The point of strict liability is to make everyone who deals with oil vigilant in preventing a spill and responsible to respond and pay for damages if a spill occurs. It is also based on the concept that the costs of prevention and response must be factored into the costs of producing, transporting, and marketing oil.

Once you have decided the roles and responsibilities, the next question is who pays for the government oversight? For large common carrier pipelines in Alaska, the sponsors or operators of the pipeline are required to pay, either by law or as a condition of their land leases. The

government in Alaska does not own or operate the pipeline. The sponsors do, subject to government control. In Alaska, the Trans-Alaska Pipeline operators are a consortium that was created for the sole purpose of designing, building and operating a pipeline on behalf of the companies who lease and produce the oil fields. That consortium is responsible for contingency planning, providing financial assurances, and for spill response along the pipeline. It passes the costs to the consortium members through the tariff it charges to ship oil through the pipeline.

Government can pay its costs directly through general government revenues, can have industry pay the costs through a billing system or can have a dedicated fund.

For example, in the U.S., both the state and federal governments have special response fund accounts paid by industry to ensure the ability to respond to catastrophic spills. In Alaska, we chose to create a dedicated fund to pay for our entire oil management program. We impose a tax of 5¢ on each barrel of oil going through the pipeline. 3¢ of that goes to an account to pay for government oversight of prevention and preparedness. 2¢ goes into a special account to be used by government to respond to catastrophic spills if the spiller doesn't respond or to oversee the spiller's efforts [Handout].

There are many ways to secure a stable funding source for oil programs but it is critical to develop that at the beginning so that there is a consistency, predictability and stability in the government's programs.

Prevention, Preparedness, and Response Program Elements

Once roles, responsibilities and funding are decided, the critical elements of prevention, preparedness and response programs must be spelled out. Basically, the goals are as follows:

- Do your best to prevent an event that could cause a spill by thinking through technology and behaviors.
- If an event happens anyway, control the source to prevent or limit the spillage.
- If oil spills, contain and control its spread.
- If oil spreads beyond containment efforts, protect shorelines.
- If shorelines are hit, determine how to cleanup without doing more damage.

These are the goals. How do you implement them?

Prevention

We start with preventing events that could lead to spills. Prevention activities differ depending on the types of exploration and production well drilling facilities, bulk oil storage, and transportation system being used. Although all are part of an overall oil transportation system, each must be managed as discrete components beginning at the wellhead and ending at the transfer to the consumer. The one unifying factor we have imposed for all facets is that the best available technology must be used. The use of best available technology is reviewed at each permit issued and renewed so we – government and industry – are routinely upgrading and improving the technologies used.

Thinking about prevention for pipelines must start during the design phase. It includes, for example, pipeline route issues, consideration for remotely operated block valves around water crossings to limit the volume lost in the event of a leak; check valves to prevent backflow during a line break; leak detection systems; weld inspection programs; metering of pipeline flows;

corrosion monitoring and detection programs; structural integrity checks; and limits for pipeline operating pressures.

Prevention programs must begin while the pipeline is still on the drawing boards, must carry through the construction phase, must be maintained during operations, and must be designed into the ultimate cleanup and removal of the pipeline once it is taken out of service. In Alaska, these requirements are imposed through state and federal laws and land leases. Pipelines are subject to independent oversight by government monitors at each stage i. e., design, construction, operation and closeout. Inspections and audits are routine.

There are many examples of how prevention is built into every aspect of oil development. For example, ships transporting crude oil may need escort tugs, rescue assist vessels or automated vessel traffic monitoring systems. Double hulled or double-bottomed tankers can prevent spillage even if an accident occurs. Exploratory or production wells may need blow out prevention devices. Oil storage tanks need secondary containment and well-understood oil transfer operations procedures.

The regime is detailed, complex, and highly technical. The important point is that every aspect of the system must be analyzed to maximize prevention.

Sometimes people question whether prevention activities are worth the costs. Well, if you are wondering about that, think about the fact that the state and federal government settled for one billion dollars in damages from the Exxon Valdez spill. The cleanup costs are reportedly anywhere from two to five billion dollars. There remain unsettled claims that could amount to another five billion dollars. That's a total potential liability of eleven billion dollars. The entire cost of the construction of the Trans-Alaska Pipeline was eight billion dollars. A single catastrophic spill can easily exceed the total construction costs of most projects. Simple economics alone make a rigorous prevention program worthwhile.

Preparedness

So, if you've done all you can to prevent an incident or to prevent spillage if there is an event, but it happens anyway, you have to be ready for it. The next critical program then is preparedness. To be prepared to respond, operators of each component of the oil system -- e.g., exploration or production drillers, bulk oil storage facilities, pipeline companies and ships carrying oil -- are required to have contingency plans and the personnel, equipment, training, organization and financial resources to respond to a spill.

They are also required to have a specified, minimum stockpile of equipment in their area of operation so they can immediately respond. The biggest gains in a response can be achieved at the outset by containing the spread of the oil. Equipment and resources must be immediately available to accomplish this.

Specifically, Alaska law requires sufficient equipment on site to respond within 72 hours to a realistic maximum amount of oil spilled. The specific amount of equipment is further defined by the type and size of facility or tanker. The operator must also have a plan on how to get additional equipment to the site as quickly as possible. This includes working out in advance mutual aid agreements for personnel and equipment. The equipment and plans are reviewed and tested by government through drills, inspections and audits.

The government, in its role of overseeing a cleanup, also has contingency plans at the federal, state and local levels. These plans are integrated so that resources are coordinated into a single effective response.

All plans are required to use a common emergency management organization, called the Incident Command System. This system uses a Unified Command, meaning that the Incident Commanders for the spiller and the state and federal governments work together to set common objectives for the cleanup and to coordinate all efforts of all participants to achieve the objectives. This system also allows all participants to know in advance what roles each will play and how the response will be managed. All can go into action immediately without wasting valuable time sorting out roles after the event occurs.

Preparedness also includes drilling and exercising of the response plans, continuous improvement from lessons learned, training, equipment maintenance, logistical readiness and funding. In short, the key to preparedness is practice, practice, practice. We have found that the more we practice, the more we can identify in advance issues that can be addressed before an event, such as mutual aid agreements, mapping and protecting sensitive areas, and setting out permit processes for using dispersants or burning.

Response

The last of the critical program elements is the actual response. Although oil spill cleanup is a very difficult and imperfect business, impacts and damages can be minimized and the total costs lowered if the response is handled appropriately. If the planning and practicing has been done well, the equipment, personnel, and resources can be deployed immediately.

Effective spill response requires partnership. In a large spill, the resources of all players are needed. Partnerships, for example, are needed to track oil using simple visual observations from fishermen in boats to technical experts who can track oil with sophisticated satellite imagery. Resource experts from multiple disciplines are needed to assess shoreline oiling and impacts. Cleanup experts are needed to develop cleanup strategies and tactics to recover oil and protect environmentally sensitive areas. Logistical support requirements for cleanup efforts in remote locations can be an enormous undertaking. The incredibly complex scale of a response to a catastrophic spill requires quick decisions and actions. In short, effective response demands cooperative partnerships.

Partnerships

Finally, for partnerships to be effective, they must start very early. The American writer Mark Twain said, "When you need a friend, it is too late to get one." Well, that is true here – you cannot wait to form relationships once oil spills. There are other substantial benefits to forming relationships early on.

In Alaska, we had a formal, sometimes confrontational, relationship with industry and citizen groups for many years. Our relationship was based upon the idea that we each had conflicting and contradictory goals and we could only discuss issues through orders and courts.

Now we think that both government and industry have matured. We share the goal of responsible oil and gas development even if our perspectives are different. By building on that shared goal and taking the time to understand each other's perspectives, we have found that we

are actually achieving far more in prevention and response preparation through collaboration than we ever did by confrontation.

Now, we work with industry very early in project design and we stay involved throughout. We expect industry to make a commitment to continuous improvement, to using the best technology and to making data readily available. We in government commit to focus on efforts that bring results and not just generate paper and to issue prompt, fair and clear permits.

Another reason why partnerships are valuable is because government and industry will be jointly judged by the public on whether oil and gas development occurred responsibly. If one fails, the other fails.

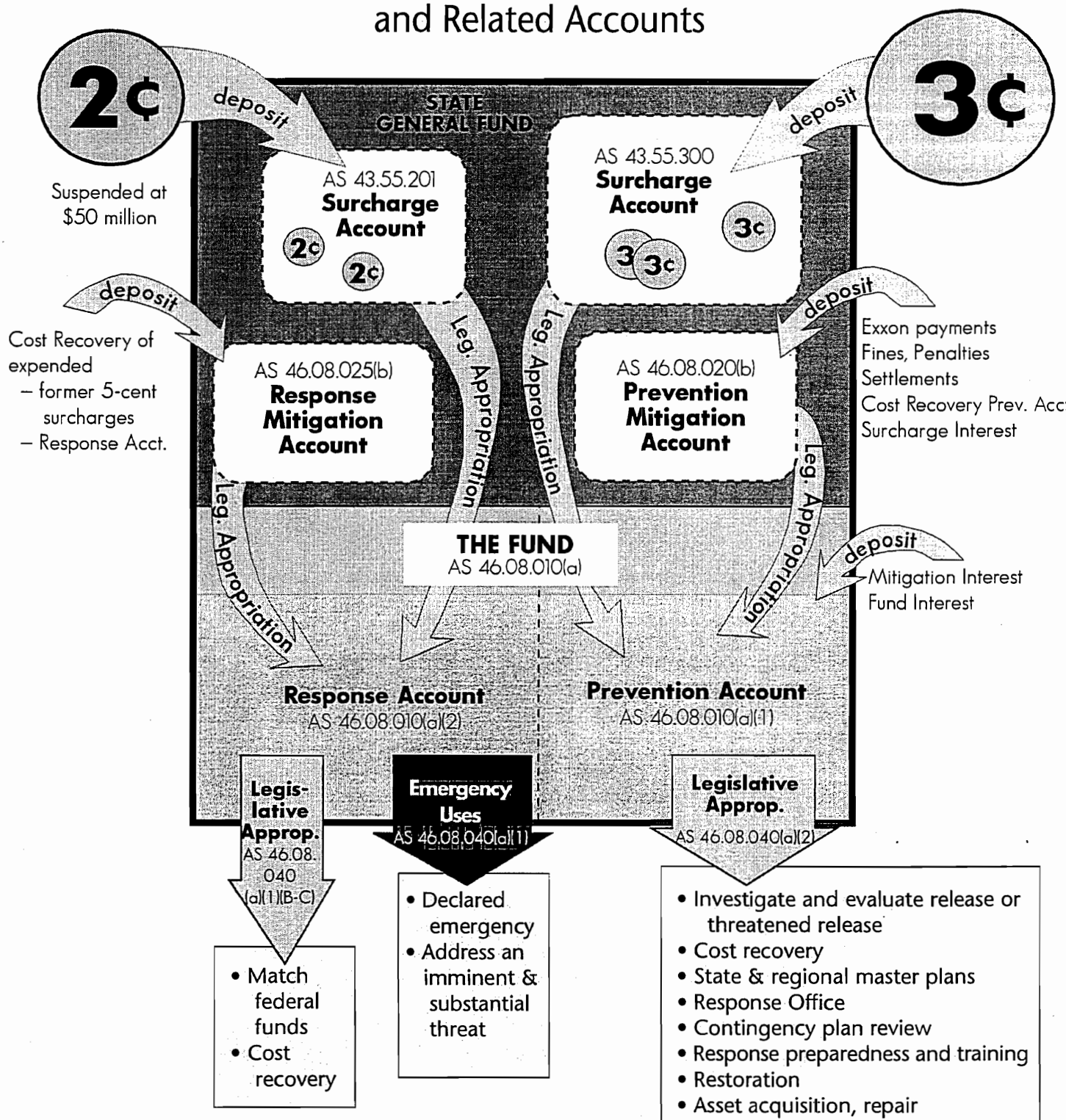
Since it is the public who will judge, it is important to bring the public into the process. In Alaska, we do this through several models. There are formal, standing representative citizen groups funded by industry and we also routinely form working groups to address specific issues. Involving the public can be time consuming and sometimes frustrating. But, it ultimately helps make better decisions and avoids substantial project delays and ill will.

In closing, I'd like to reiterate that once roles and responsibilities are set, it will be partnerships and practice that breathe life into these roles. You here today are in a unique position to develop regional approaches and model practices.

I thank you very much for allowing me to be a part of this exciting exchange and I know that these efforts will move the science and art of oil management forward for all of us. Thank you.

Oil & Hazardous Substance Release Prevention and Response Fund

and Related Accounts



Prepared by ADEC 6/96

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Then and Now

Prince William Sound oil spill prevention and response

Ten years ago, the Exxon Valdez *ran aground in Alaska's Prince William Sound, spilling over 11 million gallons of oil. Ten years later, the story is not only one of natural ruin and recovery, it is the human story of lessons learn and actions taken. Alaska today has the best oil transportation system in the world, thanks to the dedicated efforts of concerned citizens, Prince William Sound's local communities, strengthened state laws, restoration studies, and extensive industry investment.*

Prevention	March 1989	March 1999
tanker escorts	Limited ship escorting with tug through the Valdez Narrows.	Ship escort system (SERVS) in place, with operating zones for approaching and transiting Valdez Narrows. Two largest-in-the-world tractor tugs for tanker escort: one in service 2/99, the other scheduled 5/99.
support vessels	No support vessels.	An ocean rescue tug stationed at the Sound's entrance (Hinchinbrook Entrance) since 1997. Three highly maneuverable Prevention and Response Tugs will begin replacing the existing Escort Response Vessels 1/2000.
tanker transport	No requirement for double hull tankers.	Requirement for phase-in of double hull tankers by the year 2015. Two tankers with advanced navigation and ship handling features being built, the first scheduled for service at the turn of the millennium.
pilot training	No extra training required of tanker officers, tug officers, and marine pilots.	Advanced training for tanker officers, tug officers, and marine pilots; reactivated mariner's forum for monitoring and evaluating tanker operations.
ship tracking	Ship tracking limited to near Bligh Reef.	U.S. Coast Guard controlled ship tracking system throughout Prince William Sound (PWS) and 60 miles into the Gulf of Alaska.
planning	Basic oil discharge contingency plan developed by Alyeska was inadequate, and implementation was not timely for the *Exxon Valdez* spill.	Detailed oil discharge prevention and contingency plans developed by individual shippers and Alyeska and approved by DEC. Alyeska must respond in the Sound.
State oversight	Limited State oversight of Valdez marine terminal and tanker operations by three DEC generalists in Valdez.	Comprehensive State oversight of marine terminal and tanker operations, with seven DEC regulatory and spill prevention and response specialists located in Valdez.
Response		
equipment on hand	Less than five miles of containment boom in Prince William Sound.	Approximately 34 miles of specifically selected types of oil boom.
	No fire boom or igniter systems.	2600 feet of fire boom with helicopter-carried igniter systems.
	2,475 gallons of dispersants listed in plan but no application systems immediately available.	64,000 gallon dispersant stockpile, with fixed wing, helicopter and ship application systems.

Then and Now

	March 1989	March 1999
equipment locations	No response equipment stockpiled outside of Valdez.	Pre-staged equipment near the Sound's entrance (Hinchinbrook Entrance), in mid-Sound, and in Valdez and four other communities.
oil recovery	13 oil skimming systems with a combined recovery capacity of over 27,800 barrels of oil in 72 hours.	Over 60 skimming systems, including four Transrec/ Grahamrec systems (a total of 12 large skimmers), with a combined recovery capability of over 300,000 barrels of oil in 72 hours.
	One barge with 12,000 barrels of on-water storage for recovered oil stationed in Valdez.	Seven barges with 818,000 barrels of on-water storage for recovered oil strategically located throughout the Sound. 52 smaller barges for near shore work.
trained responders	Limited number of trained spill responders.	Dedicated trained spill response teams and Ship Escort/Response Vessel System (SERVS).
hatchery protection	No salmon hatchery protection plans or prestaged spill response equipment at hatcheries.	Hatchery protection plans for all five PWS hatcheries and Afognak Island's Kitoi Bay hatchery, with pre-staged equipment there and in Tatitlek to protect oyster farming.
citizen involvement	No organized citizen involvement in plan development and oversight.	Prince William Sound and Cook Inlet Regional Citizen Advisory Councils created.
community involvement	No community response centers.	Five community response centers in PWS: Valdez, Cordova, Tatitlek, Whittier, and Chenega Bay.
	No plan to involve local fishing vessels in a response to a spill.	A program to train fishing vessel personnel in Prince William Sound, lower Cook Inlet and Kodiak, and incorporates vessels into a response strategy.
wildlife rescue	No established wildlife rescue programs.	Wildlife response plan with rescue and rehabilitation equipment in place.
practice drills	No major spill drills conducted.	Major spill drill conducted annually, with frequent smaller drills.
managed response	No consistent management structure for spill response.	A Unified Command Incident Command Structure adopted by DEC, Coast Guard, SERVS and shippers for response to oil spills.
communications	Limited State radio communications for spill response command in PWS.	Fixed radio repeater system with communications capability to cover PWS and Cook Inlet, with some reach into the Gulf of Alaska.

We invite your comments and questions. Please contact us at:

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February 1999

PRINCE WILLIAM SOUND OIL SPILL PREVENTION IMPROVEMENTS

Oil spill prevention is achieved by fighting complacency, eliminating human and mechanical failures, using the best technology and having back-up safety systems to recover from failures when they happen.

Several steps have been taken during the past three years to improve oil spill prevention in Prince William Sound. The reverse side lists oil spill response readiness measures in place during the 1989 Exxon Valdez oil spill and now in 1999.

X The **Prince William Sound Risk Assessment Study** identified steps to further reduce the risk of oil spills. The study concluded risk has been reduced 75% since 1989. Several recommendations to further reduce human and mechanical failures that lead to accidents have been done - some steps are still underway. The tanker escort system (tug boats) is the strongest spill prevention tool in use today.

X **Tanker transit procedures** have been changed:
- to establish clear on-water operating zones for approaching and transiting Valdez Narrows;
- set a clear duty for tug operators to watch for and aid in correcting any abnormal tanker operations;
- in 1998, phased in a sentinel based escort system to make use of the best tug boat designs for the changing demands of each part of the Sound; tractor tugs for the confined waters, rescue tug for the Entrance and Gulf.

X **The Valdez Marine Operator's Committee**, a mariner's forum for monitoring and evaluating tanker operations, was reactivated to provide continuous improvement of tanker operations.

X **Advancements in bridge simulators** have been developed by shippers & Alyeska creating the ability to jointly train tanker and tug officers and marine pilots under conditions that simulate Prince William Sound.

X **New tug escort vessels** are bringing the best available technology to aid any tanker in trouble. The ocean rescue tug, *Gulf Service*, began service in the Sound in April 1997. The first of the world's largest tractor tugs arrived in Valdez on Jan. 27, 1999. The *Nanuq* will be joined by the *Tan'erliq* in May '99. Recently, Alyeska and shippers have commissioned Crowley Marine to build 3 highly maneuverable Prevention Response Tugs to replace the aging Escort Response Vessels.

X **ARCO=s New *Millennium* Tankers** combine double hull design with several new technology advancements including navigation and ship handling electronics, bow thrusters and independent back-up engine, propeller and steering system to step into a new era of tanker design for Prince William Sound. Two of this class of tanker are being built, the first will begin service in less than two years at the turn of the millennium.

Rev. 2/99

(Over)

THEN & NOW
PRINCE WILLIAM SOUND OIL SPILL RESPONSE

March 1989	March 1999
No ship escort system.	Ship escort system (SERVS) in place with an open ocean rescue tug stationed at Hinchinbrook entrance and two state-of-the-art tractor tugs built for PWS service.
13 oil skimming systems with a combine recovery capability of over 27,800 bbl of oil in 72 hours.	Over 60 skimming systems including 4 Transrec systems with a combine recovery capability of over 300,000 bbl of oil in 72 hours. These systems also include the Valdez Star and 5 nearshore taskforces with 48 mini-barges.
1 barge with 12,000 bbl of on water storage for recovered oil.	7 barges with 818,000 bbl of on water storage for recovered oil.
No ship tracking system.	USCG controlled ship tracking system (ADSS).
45 drums of dispersant were listed in plan but no application systems were immediately available	Significant dispersant stockpile with fixed wing, helicopter and ship application systems.
No organized citizen involvement in plan development and oversight.	Prince William Sound and Cook Inlet Regional Citizen Advisory Councils created.
No hatchery protection plans or prestaged spill response equipment at hatcheries.	Hatchery protection plans for all PWS hatcheries and Kitoi Bay hatchery on Afognak Island with pre-staged equipment at these hatcheries.
Limited number of trained spill responders.	Dedicated trained spill response teams {Ship Escort/Response Vessel System (SERVS)}.
Less than 5 miles of containment boom.	Approximately 34 miles of containment boom in PWS.
No fire boom or igniter systems.	2600 feet fire boom with helicopter carried igniter systems.
No community response centers.	5 community response centers in PWS.
No community training programs.	Community training programs operating in PWS, lower Cook Inlet and Kodiak.
No plan to involve local fishing vessels in a response to a spill.	A fishing vessel program that first trains then incorporates them into a response strategy.
No established wildlife rescue programs.	Wildlife response plan with rescue and rehabilitation equipment in place.
Basic Oil Discharge Contingency Plan developed by individual shippers was in place and not implemented for the Exxon Valdez spill.	Detailed Oil Discharge Prevention and Contingency Plan developed by Alyeska (SERVS) and the shippers approved by DEC.
No major spill drills were conducted.	A major spill drill is conducted annually with numerous frequent smaller drills.
No consistent management structure for spill response.	A Unified Command Incident Command Structure adopted by DEC, Coast Guard, SERVS and shippers for response to all oil spills.
Limited State oversight of Valdez marine terminal and tanker operations by 3 DEC generalists in Valdez.	Comprehensive State oversight of marine terminal and tanker operations with 7 DEC regulatory and spill prevention and response specialists located in Valdez.
Limited State radio communications for spill response command in PWS.	Fixed radio repeater system with communications capability to cover PWS and Cook Inlet with some reach into the Gulf of Alaska.

III. International Conventions and Experiences of Others with Major Oil Spills

IMO

The International Fund, Liability & Emergency Response Conventions
by
John Ostergaard

A specialised agency under the United Nations family with responsibility for maritime safety and protection of the marine environment

IMO

- 158 Member States
- 2 Associate Members
- > 50 Governmental &
  Non- Governmental Observer Organisations

IMO

- **Marine Environment**
  - operational pollution
  - accidental pollution
  - dumping of wastes
  - air emissions

IMO

Technical cooperation and assistance to Member States to implement various IMO Instruments (approximately 50 instruments in total)

IMO

- **Operational Pollution Conventions**
  - MARPOL 73/78
- **Accidental Pollution Convention**
  - OPRC '90
- **Compensation Conventions**
  - CLC
  - Fund

International Conventions

- International Convention on the Prevention of Pollution from Ships, 1973, as Amended by the Protocol of 1978 (MARPOL 73/78)
- International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC 1990)
- International Convention on Civil Liability for Oil Pollution Damage, 1969 (CLC)
- International Convention on the establishment of an International Fund for Oil Pollution Damage, 1971 (FUND)

Contents of MARPOL 73/78

- 20 Articles
- 2 Protocols

Protocol 1: Provisions concerning Reports on Incidents Involving Harmful Substances;

Protocol 2: Arbitration

Contents of MARPOL 73/78

Annexes

I: Regulations for the Prevention of Pollution by Oil - 1983;

II: Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk - 1987;

III: Regulations for the Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form - 1992;

Contents of MARPOL 73/78

Annexes

IV: Regulations for the Prevention of Pollution by Sewage from Ships (not yet in force);

V: Regulations for the Prevention of Pollution by Garbage from Ships - 1988;

VI: Regulations for the Prevention of Air Pollution from Ships - 1997 (not yet in force)

INTERNATIONAL MARITIME ORGANIZATION

OPRC CONVENTION

INTERNATIONAL CONVENTION ON OIL POLLUTION PREPAREDNESS, RESPONSE AND CO-OPERATION, 1990

IMO

OPRC 1990

International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990

- Produced and adopted by an International Conference in 1990
- Applies to oil in any form
- Will apply to hazardous and noxious liquid substances (from year 2000)
- Came into force in May 1995
- Ratified by over 30 countries

OPRC

Key Objectives

- Develop National Response System
- Facilitate international cooperation and mutual assistance

OPRC

Obligations of parties. National level

- Develop a response organisation
- Ensure that potential polluters maintain oil spill reporting and response procedures
- Designate a national authority

OPRC

Obligations of parties: International level

- Inform neighbouring States of oil spills which could affect them
- Provide assistance if requested by another party

OPRC

Role of IMO

- Provide Research and Development support
- Receive, collate and disseminate information
- Promote training via development of model courses
- Assist in establishing national/regional response capabilities
- Co-ordinate international assistance in event of a major oil spill

OPRC

Benefits

- Assistance in case of oil spills
- Technical assistance for the development of national and regional oil spill contingency plans
- Technical assistance for training and exercises
- Reports on oil spills outside territorial sea which can be a threat to a coastal state

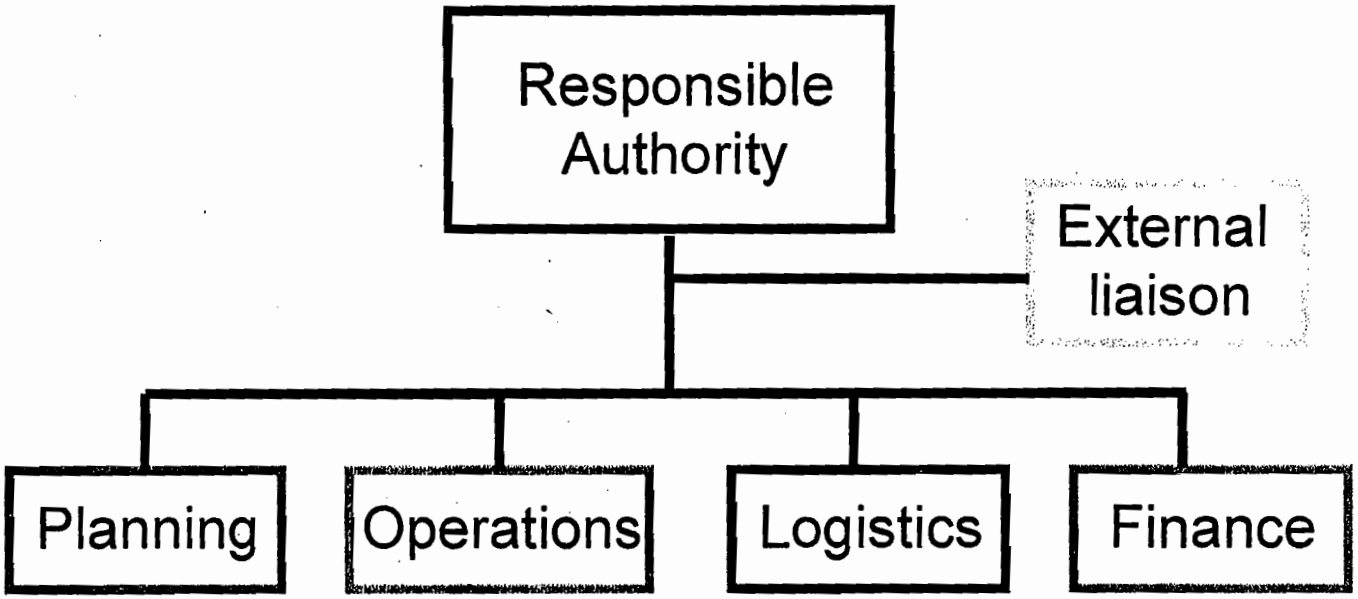
Planning Process

- Effective contingency planning is a co-operative process involving government, industry and all others who share the risk and responsibilities, that requires:
  - assessment of the risk and economic, social & ecological impacts
  - development of credible response strategies
  - clear definition & allocation of responsibilities
  - commitment by government and industry to exercising, maintaining and updating contingency arrangements

Strategy

- Assessment of spill risk
- Movement and persistence of oil
- Resources at risk from an oil spill
- Selection of techniques
- Outline of the response organisation
- Use of all available response resources within the Region.

Simplified Organisation Structure for a National Oil Spill Plan



Operational Plan

- Notification
- Evaluation
- Response Decisions
- Clean-Up Operations
- Communications
- Waste Disposal
- Termination of Clean-Up

Section II

MANUAL ON OIL POLLUTION

CONTINGENCY PLANNING

1995 Edition

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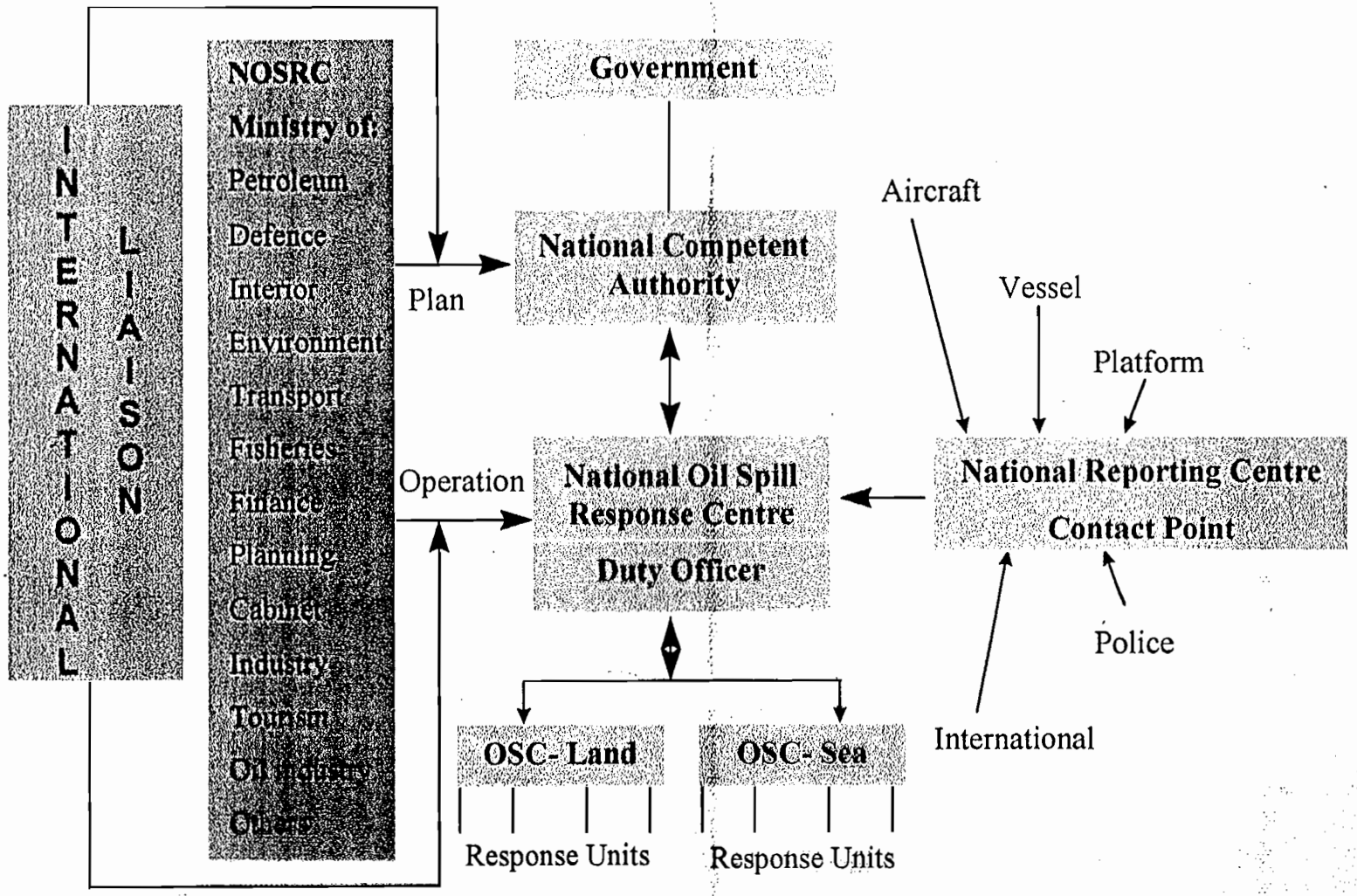
Example of a National Oil Spill System



OVERVIEW OF RECENT OIL SPILL EXPERIENCES

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ABSTRACT

Three recent oil tanker spills in Japan, Malacca Strait and the Gulf illustrate the importance of effective national contingency plans. The main lessons of each spill are identified together with suggested remedies. The value of ratifying the international compensation conventions is also highlighted.

NAKHODKA OIL SPILL

On 2nd January, 1997 the Russian tanker NAKHODKA (19,684 DWT), *en route* from Shanghai, China to Petropavlovsk, Russian Federation with a cargo of 19,000 tonnes of Medium Fuel Oil, broke up in heavy seas in the Sea of Japan. The tanker broke into two sections, resulting in a spill of some 6,200 tonnes of oil which severely tested oil spill response arrangements in Japan.

The spilled oil proved to form very stable and persistent water-in-oil emulsions which resisted physical degradation by wave action at sea, and caused an increase in the volume of pollutant by a factor of 4-5 since the water content of the emulsions reached over 80%. The increased persistence of the emulsified oil allowed it to travel distances of more than 1,000 kilometres affecting the coastline of ten provinces.

The Maritime Safety Agency (MSA) is the lead government agency for salvage and clean-up operations but looks to the tanker owner to provide equipment and manpower resources to supplement its own capability. A contract was signed on behalf of the tanker owner with the partly government-funded Japan Marine Disaster Prevention Centre (MDPC) to organise the clean-up operations using commercial contractors. In addition, the Petroleum Association of Japan (PAJ) provided coastal booms, skimmers, portable storage tanks and a number of trained operators. Electricity generating companies deployed several kilometres of boom to protect water intakes to seven nuclear power stations within the affected area.

More than 80 vessels belonging to MSA and the Japan Self Defence Force were engaged in oil recovery operations. Following a Japanese Government request for assistance, the Russian Ministry of Merchant Marine (MNS) dispatched four vessels equipped with oil recovery systems to assist MSA. Crane barges chartered by MDPC and by prefecture governments were comparatively effective at collecting the highly viscous emulsified oil from the sea surface using clam-shell buckets. In addition, several hundred fishing boats from eight prefectures were mobilised to collect oil manually into drums.

Shoreline clean-up was organised by local fishery associations, prefecture and municipal authorities, primarily using manual methods. Most of the oil stranded on the shoreline had been removed by mid-February. In the five most heavily contaminated provinces more than 500,000 man-days were expended on shoreline clean-up. Volunteers from all over Japan provided about half of this effort. The total quantity of collected waste is estimated to be some 50,000 tonnes, which has been transported by road, rail and sea to industrial disposal facilities, mainly incineration plants, all over Japan.

Costs, losses and compensation

Japan is a party to the 1992 Civil Liability Convention and the 1992 Fund Convention. However, since the Russian Federation, the flag state of the NAKHODKA, is a party to the 1969 Civil Liability Convention the tanker owner's limit of liability is governed by that Convention. The limit is approximately 1.6 million Special Drawing Rights (SDRs) (about US$ 2.3 million). Additional compensation is payable by the International Oil Pollution Compensation Funds (1971 Fund and 1992 Fund), up to a total amount of 135 million SDRs (approximately US$ 192 million), inclusive of the compensation paid by the tanker owner. Preliminary estimates of the quantum of potential claims indicate that there is a risk that the upper limit of the 1992 Fund may be exceeded and, as a consequence, the 1991 and 1992 Funds have, for the moment, set a limit on payments of 60% of any substantiated claims.

The Civil Liability Conventions and the Fund Conventions provide for compensation to be paid for reasonable measures undertaken to prevent or minimise pollution damage. The criteria followed for judging whether a claim is admissible are primarily technical. For example, the scale of the response measures should be in proportion to the size of the spill, the expected level of success, and the ability to direct and control operations effectively.

Spill response problems encountered

1. The characteristics and behaviour of the oil spilled in the NAKHODKA incident determined the tactics employed for collecting oil from the sea surface. The emulsification process transformed the liquid oil into semi-solid lumps which could be collected more effectively and more cheaply with crane barges fitted with clam-shell buckets than with conventional booms and skimmers. The large quantities of free water collected with the oil lumps could be easily decanted.

2. The performance of the Russian vessels provided to assist in the offshore oil collection was poor. Amongst several reasons, the lack of experience of operating in Japanese waters and of working in collaboration with Japanese authorities must have been significant. In other countries reliant on close international co-operation, such as the Baltic countries, frequent exercises are held to overcome the inevitable obstacles posed by different languages, logistics requirements, operating systems and command structures.

3. In February, at a stage when oil had become very widely scattered across the Sea of Japan, there were over 100 sea-going patrol/oil recovery vessels involved in NAKHODKA oil spill response activity, as well as several hundred fishing boats. There can have been no prospect for utilising this number and size of craft in reasonable oil pollution preventive measures. Furthermore, even this number of craft did not succeed in reducing shoreline impact of oil to any significant degree.

4. The key to effective response action is good organisation. Although there were large quantities of equipment and materials available for the spill response, the resources were not utilised in a fully co-ordinated manner, with a singly entity in overall charge to implement a coherent strategy. Many of the provinces ran their own clean-up operations with little or no attempt to co-ordinate their activities with neighbouring provinces or with MDPC. An integrated national contingency plan covering all levels of oil spill response would help to alleviate this problem in the future.

5. The shoreline clean-up operation was well organised locally and successful in quickly removing the bulk of the pollutant from the tideline into temporary storage pits. However, the lack of plans for an operation on this scale led to temporary storage sites being overwhelmed and also to multiple handling of collected waste. The key to cost-effective shoreline clean-up, oil transport, and disposal is to minimise the number of steps in handling collected oily waste.

6. In the NAKHODKA incident too few disposal options were available for clean-up managers to consider. There was little or no opportunity to encourage competitive bidding amongst potential disposal contractors. Although bagged and bulk waste were carefully segregated during storage, no separation and recycling of free oil from the bulk waste was achieved. As part of the national contingency plan review, efforts should be made to identify more economically viable options for separating oily waste and recycling recovered oil.

EVOIKOS OIL SPILL

The tankers EVOIKOS (80,823 GT) and ORAPIN GLOBAL (138,037 GT) collided whilst passing through the Strait of Singapore on 15 October 1997. The EVOIKOS suffered severe damage to three cargo tanks and an estimated 29,000 tonnes of heavy fuel oil was spilled almost instantaneously. By 19 October the viscosity of the oil had greatly increased through natural weathering, and winds and currents had begun to move the slicks away from Singapore waters and into the Malacca Strait. During subsequent weeks the oil continued its north-west drift, spreading over more than 3,000 square kilometres of sea surface before finally coming ashore in places along a 40 kilometre length of the Malaysian coast in the Province of Selangor.

At the time of the EVOIKOS spill, Singapore was party only to CLC 69, and the shipowner/insurer's liability under this convention was about US$ 13 million. However, the spill also reached the waters of Malaysia and Indonesia, and as these countries were parties to Fund 71 as well as to CLC 69, additional compensation up to the Fund 71 limit was potentially available in these countries.

Oil spill response measures

The Maritime and Port Authority of Singapore (MPA) took charge of the clean-up operations, initially focusing on dispersant spraying at sea and then on containment and recovery of the floating oil. About 500 tonnes of dispersant were reported to have been applied to the slicks, mainly from boats. In theory, if applied in optimal proportions (1:20, dispersant:oil), this volume would have been sufficient to disperse about 10,000 tonnes of oil. However, test applications of dispersant carried out during the 4th day after the spill, showed that the oil had become very viscous and that dispersants were no longer effective. Whilst application from helicopters was stopped after the trial, spraying from boats continued.

Subsequent attempts at recovering oil from the sea were hampered, not by an absence of appropriate equipment, but by the lack of adequate logistical support for skimmers and booms. Although more than fifteen heavy oil skimmers and adequate boom for oil containment were immediately available, only a few fully functional systems were operational.

Once the threat to Singapore had receded, the focus turned to shoreline cleaning on the small southern islands which had been oiled. In all about 40 kilometres of shoreline had been contaminated, including tourist/recreational islands, industrial areas and military facilities. Contaminated shorelines comprised rocks, boulders, man-made sea walls, sandy beaches and mangrove swamps. Setting realistic priorities for clean-up became crucial for a number of reasons.

Given the potential scale of clean-up, there were concerns over the adequacy of the available compensation. Under the terms of CLC '69, a maximum of about US$ 13 million was available from the shipowner/insurer for all aspects of clean-up and damages, but considerable sums had already been spent at sea, and further expenditure might also be incurred for clean-up and damages in Malaysia and Indonesia, which would further limit available compensation for Singapore. As noted previously, Malaysia and Indonesia were party to Fund 71 at the time of the spill, and claimants in those countries have the right to supplementary compensation from the 1971 IOPC Fund if any shortfall in their approved claims resulted from the CLC 69 limit being exceeded and pro-ration being applied.

Cleaning recreational beaches in Singapore was deemed to be the highest priority. Manual and mechanical techniques as well as dispersants and seawater pumps were used to clean sandy beaches and sea walls. Extensively oiled sea walls in industrial areas and on military islands were mainly inaccessible and not open to the public. Given that the oil had rapidly stabilised, it was recommended that only areas where contact with vessels or personnel was likely should be cleaned, allowing natural degradation to take its course elsewhere in this already industrially-contaminated area. Mangroves, which are also found on the industrial and military islands, are a special case, as scientific evidence points strongly to the need to leave them to natural recovery because of the high risk of compounding damage by attempts at clean-up. One area of newly created mangrove swamp (to replace mangrove destroyed by commercial developments) was oiled, but to date survival of the planted seedlings seems good.

There is no doubt that the progress of shoreline cleaning work in the Singapore islands was hampered by the limited funds available. Had supplementary compensation from the IOPC Fund been available in Singapore it is likely that the cleaning operation would have been concluded more quickly and to the greater satisfaction of all parties.

By the time oil slicks had reached Malaysian waters in the Malacca Strait, it had already been established that the oil was no longer amenable to chemical dispersants. The Malaysian Marine Department (MMD), which was in charge of response operations at sea were persuaded to follow a strategy of close monitoring and surveillance using helicopter and boat services, and placing on standby adequate resources to protect those sensitive coastal areas given the highest priority. Some containment and recovery equipment was kept in readiness to work close inshore in these areas and some clean-up resources were put on alert to respond to any shoreline impact.

Onshore clean-up operations were co-ordinated by the Malaysian Department of Environment with support from the MMD. Individual district authorities within the Selangor Province organised the manual removal of oil and oily material from sandy shores, and arrangements were

made to clear the rocky and concrete breakwater areas. Scientific evidence was heeded in the case of affected mangroves, with the oil being left to weather, and the mangroves to recover naturally.

Conclusions

- The oil spilled in the EVOIKOS incident remained afloat in a narrow waterway for 2½ months as a result of the high viscosity of the oil and calm weather conditions.

- High oil viscosity was the main factor limiting dispersant effectiveness.

- Attempts to recover oil using booms and skimmers were hampered initially by a lack of barges for storing collected oil. By the time barges became available the bulk of the oil had drifted out of Singapore waters and spread over a large area.

- The Malaysian authorities adopted a realistic and successful strategy of monitoring drifting oil and protecting key sensitive resources.

- Because compensation available under the terms of CLC 69 may be insufficient for the payment of all valid claims, there is a risk that claimants in Singapore may receive only partial compensation since Singapore had not ratified Fund 71 at the time of the EVOIKOS incident. Singapore has now ratified CLC 92 and Fund 92, which will be in force on 31 December 1998 and which provide both higher compensation limits and a broader scope of application.

PONTOON 300 OIL SPILL

On 7 January 1998, intermediate fuel oil (IFO) was spilled from the sea-going barge PONTOON 300, whilst under tow by a tug off the United Arab Emirates (UAE). The barge had reportedly become swamped by heavy seas generated by strong and blustery winds (*'shamal'*) and eventually sank in a depth of 21 metres. Although designed for deck cargoes, the uninsured barge was on this voyage carrying her cargo of IFO in 24 buoyancy tanks. A regular trade of oil shipments from the northern Gulf in barges of uncertain ownership has developed over the last few years in contravention of an international oil embargo.

A local contractor undertook the salvage of the PONTOON 300 and its remaining cargo. The salvage operation proved complicated because of alterations to internal bulkheads made previously by the barge owner. After four attempts, the barge was finally raised, upside down, and towed into port on 6th February. After oil residues had been removed, the barge was towed 17 nautical miles out to sea and scuttled.

Oil spill response measures

In a major spill affecting more than one Emirate, the Federal Environment Agency (FEA) will take overall charge and appoint a response committee and an on-scene commander. However, there is no National Contingency Plan setting out chains of command or operational procedures and the FEA has no specialised spill response equipment, but relies on port authorities, the Frontier and Coast Guard Service (FCGS) and the oil industry for resources.

Although control of major oil spills is the responsibility of FEA, very little was done initially to deal with the stranded oil because of uncertainty over compensation. Neither the barge owner nor a pollution insurer could be identified. This meant that there was no compensation available under the terms of CLC 69. The 1971 IOPC Fund was applicable, but is established only to pay compensation and is not constituted to contract resources or manpower. Thus, a government agency or private organisation had first to put in place the necessary contractual arrangements, thereby taking on the financial commitment, and later claim compensation from the IOPC Fund.

The initiative was taken by a small clean-up team from the Abu Dhabi National Oil Company (ADNOC) to begin recovering oil, working from the shore. Other clean-up contractors were later appointed by FEA. ADNOC recovered about 60 tonnes of oil, which was disposed of to landfill. Manual cleaning of shorelines started on 12 January with about 100 workers supported by mechanical diggers. However, co-ordination and control of the clean-up operations by FEA was hampered by a severe lack of resources and funding. Beach clean-up funded by FEA was therefore suspended towards the end of January.

After two months a local clean-up contractor came forward and undertook to resume the remaining beach cleaning work with a view to claiming compensation from the 1971 IOPC Fund. A programme of bulk oil removal which met the Fund's technical criteria was drawn up by IOPC Fund experts and agreed with by FEA, thus maximising the likelihood of full cost recovery under Fund 71.

Conclusions

- Although the UAE had ratified CLC 69, only Fund 71 was applied in the PONTOON 300 incident since no shipowner or pollution insurer could be identified.

- Oil spill response measures were hampered by the lack of an effective national plan.

- The clean-up operation was interrupted due to a lack of government funds but was resumed after seven weeks when a successful solution for resuming the clean-up was found involving close co-operation between the government authority, a commercial clean-up contractor and the IOPC Fund.

- The UAE has now ratified the CLC 92 and Fund 92, which will come into force on 19 November 1998.

Chris Morris
Texaco and Chairman
IPIECA Oil-spill WG

THE CONTINGENCY PLANNING PROCESS

OVER THE PAST TWO DAYS A NUMBER OF SPEAKERS HAVE TOUCHED ON THE CONTINGENCY PLANNING PROCESS. I WOULD LIKE TO SPEND A SHORT WHILE REVIEWING WITH YOU THE MAJOR COMPONENTS THAT MAKE UP A PLAN. AS IPIECA MENTIONED YESTERDAY IN MY PRESENTATION, IPIECA HAS PRODUCED AN EXCELLENT REPORT ON CONTINGENCY PLANNING, WHICH I WOULD RECOMMEND.

IN PARTICULAR, WE NEED TO LOOK AT WHAT ARE THE KEY ELEMENTS THAT MAKE UP A PLAN AND, ALSO STRESS, THAT AN EFFECTIVE PLAN IS ONE THAT HAS COMPLETE BUY-IN BETWEEN GOVERNMENT AND OPERATING COMPANIES.

THE PURPOSE OF A CONTINGENCY PLAN IS SIMPLE. IT PROVIDES THE POLICY AND FRAMEWORK FOR THE ORGANISATION OR ORGANISATIONS AUTHORISED TO RESPOND TO AN INCIDENT.

A CONTINGENCY PLAN ALLOWS FOR A COMPLEX RESPONSE TO BE DEVELOPED IN A CALM, NON-EMERGENCY ENVIRONMENT, FREE FROM PRESSURES OF A RESPONSE, TO BETTER ENSURE THAT IN THE EVENT OF A REAL INCIDENT, ALL ARE PREPARED.

AS COMMISSIONER BROWN FROM THE STATE OF ALASKA MENTIONED YESTERDAY, DURING HER EXCELLENT LUNCH TIME ADDRESS, THE DEVELOPMENT OF THE PLAN CAN BE A LONG PROCESS INVOLVING LIAISON AND DISCUSSION WITH A WHOLE RANGE OF INTERESTED PARTIES. YOU MUST REMEMBER THAT ALL VIEWS ARE VALID AND THAT THE BEST RESULT IS ONE OF CONSENSUS.

SO, WITHOUT PRE-PLANNING, THAT IS IDENTIFYING THE ORGANISATIONAL FRAMEWORK, IDENTIFYING SENSITIVE AREAS THAT NEED TO BE PROTECTED, KNOWING WHERE THE RESPONSE EFFORT AND EQUIPMENT WILL COME FROM, THEN IT WILL BE DIFFICULT TO FOCUS ON THE RIGHT STRATEGIES AND TECHNIQUES.

IN FACT FAILING TO PLAN IS PLANNING TO FAIL!

OVERALL PLANNING RESPONSIBILITY

WHO HAS OVERALL PLANNING RESPONSIBILITY?

IT IS NORMALLY THE LEAD AGENCY, DESIGNATED BY THE NATIONAL GOVERNMENT, WHO HAS OVERALL RESPONSIBILITY FOR THE DEVELOPMENT, MAINTENANCE, AND ACTIVATION OF THE PLAN, AS WELL AS THE OVERALL RESPONSIBILITY FOR THE CO-ORDINATION AND DIRECTION OF THE RESPONSE TO OIL SPILLS AFFECTING THE STATE. OFTEN THIS AUTHORITY LIES WITHIN THE DEPARTMENTS OF TRANSPORT, ENVIRONMENTAL PROTECTION, COASTGUARD OR DEFENCE. IT DOES NOT MATTER WHICH DEPARTMENT, SO LONG AS IT IS ONLY ONE THAT TAKES THE LEAD.

IN ADDITION, OTHER SPECIALIST AGENCIES WILL BE RESPONSIBLE FOR DIFFERENT ASPECTS OF THE RESPONSE AND WILL BE ASSIGNED DIFFERENT RESPONSIBILITIES WITHIN THE CONTINGENCY PLAN.

I CAN THINK OF A FEW, SUCH AS MARINE SALVAGE, FISHERIES, ENVIRONMENTAL PROTECTION, CUSTOMS AND IMMIGRATION AND COMMUNICATIONS.

IT IS ALSO VERY SENSIBLE TO DEFINE THE RELATIONSHIP THAT INDUSTRY CAN BRING TO THE PLAN AS THEIR EXPERTISE AND KNOWLEDGE CAN PROVIDE AN INVALUABLE SOURCE OF PRACTICAL COMMON SENSE.

PLAN TYPES / TIERS

TRADITIONALLY, THERE ARE SEVERAL LAYERS OF PLANS THAT SHOULD INTERLOCK TO FORM A WHOLE. THE NATIONAL, TIER 3 PLAN DESCRIBES THE NATIONAL RESPONSE SYSTEM INCORPORATING THE COMPLETE COASTLINE AND TERRITORIAL WATERS. THE NCP IS THE OVERARCHING

DOCUMENT THAT EMBODIES THE NATIONAL RESPONSE SYSTEM, POLICY AND ESTABLISHES THE NATIONAL ORGANISATION FOR RESPONSE TO OIL SPILLS.

A TIER 1 PLAN IS VERY SPECIFIC AND RELATES SOLELY TO A PLATFORM, TERMINAL OR PORT.

IN THOSE INSTANCES, WHERE AN INTERMEDIATE LEVEL OF RESPONSE IS REQUIRED BETWEEN THE LOCAL RESPONSE CAPABILITY AND THE NATIONAL LEVEL, A TIER 2 AREA OR REGIONAL PLAN IS DEVELOPED FOR THE POOLING OF RESOURCES.

TIERED RESPONSE

I TALKED BRIEFLY YESTERDAY OF INDUSTRY'S TIERED CATEGORISATION OF RESPONSE LEVELS PROVIDING A PRACTICAL, COMMON SENSE BASIS FOR PLANNING AND ORGANISING.

MOST CONTINGENCY PLANS ARE BASED ON THIS APPROACH IN WHICH INITIAL RESPONSE IS MODEST AND LIMITED (TIER 1) BECAUSE THE SPILL IS KNOWN TO BE SMALL AND MANAGEABLE; BUT IS CAPABLE OF EXPANDING LOGICALLY TO HIGHER LEVELS (TIER 2 & 3) IF THE SPILL REQUIRES ADDITIONAL RESOURCES BEYOND THE CAPABILITY OF THOSE EXISTING AT THE GIVEN TIER LEVEL.

OFTEN, THE TIERS ARE BASED ON ESTIMATES OF SPILL SIZE OR SPILL DAMAGE POTENTIAL , AND FOLLOWS A SIMPLE RISK MANAGEMENT APPROACH. SUCH AN APPROACH ENSURES THAT YOU HAVE AVAILABLE POLLUTION EQUIPMENT AND PEOPLE IDENTIFIED AND AVAILABLE ON A SCALE AND TIMEFRAME EQUAL TO THE RISK.

IT ALSO AVOIDS EXCESSIVE INVESTMENT AND ENSURES THAT MAINTENANCE AND TRAINING IS MORE COST EFFECTIVE.

CONTINGENCY PLANS

A CONTINGENCY PLAN HAS TWO PRINCIPLE PARTS OR SECTIONS. A STRATEGY SECTION ON PLANNING, POLICY AND ADMINISTRATION, AND, AN OPERATIONAL SECTION OUTLINING OPERATIONAL RESPONSE MATTERS, SUCH AS ACTION LISTS.

LET'S JUST TAKE A LOOK AT SOME OF THE SUGGESTED CONTENTS IN EACH SECTION.

STRATEGY SECTION

THE PLAN SHOULD ANSWER CERTAIN BASIC QUESTIONS. FIRSTLY, IT SHOULD CLEARLY STATE WHOSE PLAN IT IS AND WHO HAS RESPONSIBILITY. IT MAY BE A SPECIFIC PLAN FOR A REFINERY, PORT AUTHORITY, TERMINAL, PLATFORM OR PIPELINE. ALTERNATIVELY, THE PLAN MAY BE MORE GENERIC, SUCH AS A NATIONAL PLAN. IN WHICH EVER CASE, IT MUST INDICATE WHO IS THE AUTHORITY RESPONSIBLE FOR ITS IMPLEMENTATION AND, WHO IS IN CHARGE. PREFERABLY A SINGLE PAGE SHOULD CLEARLY STATE THESE AUTHORITIES.

AS FAR AS SCOPE, THE PLAN SHOULD ANSWER CERTAIN BASIC QUESTIONS. WHAT AREA DOES IT COVER? WHAT IS IT'S GEOGRAPHICAL BOUNDARY? WHAT HAS TO BE PROTECTED AND HOW DOES THE PLAN LINK WITH OTHER PLANS?

ANY PLANNING PROCESS BEGINS WITH THE ASSESSMENT OF THE POTENTIAL PROBLEMS. IN THE CASE OF OIL SPILL RISK, THIS MEANS THE ASSESSMENT OF EXPECTED FREQUENCY AND SIZE OF SPILLS, AND THE TYPES OF OIL LIKELY TO BE INVOLVED. THIS CAN BE DETERMINED THROUGH HISTORICAL DATA OF INCIDENTS IN THE PAST, COMPARISON OF SPILL DATA FROM SIMILAR OPERATIONS ELSEWHERE.

IT IS IMPORTANT TO KNOW WHAT OIL TYPES ARE INVOLVED, THEIR CHARACTERISTICS AND POSSIBLE WEATHERING. BUT, MOST IMPORTANT, SCENARIOS SHOULD BE DEVELOPED BASED ON REALISTIC PROBABILITIES FOR POTENTIAL INCIDENTS, AS A MEANS OF FRAMING THE POTENTIAL RISK FOR A SPECIFIC GEOGRAPHICAL AREA.

BASED ON THESE SCENARIOS, PROBABLE TO WORST CASE, THE RESPONDING AUTHORITY CAN THEN BEGIN TO DEVELOP RESPONSE SYSTEMS, RESOURCES ETC. TO COMBAT FUTURE SPILLS.

YOU MUST ALSO UNDERSTAND HOW THE OIL WILL BEHAVE ONCE RELEASED INTO THE ENVIRONMENT AND POSSIBLE WEATHERING CHARACTERISTICS. THIS WILL AFFECT THE RESPONSE OPTIONS AVAILABLE AS THE SPEED OF RESPONSE MAY BE IMPERATIVE DEPENDING ON THE CHARACTERISTICS.

FACTORS THAT AFFECT THE MOVEMENT OF OIL ARE WIND, CURRENT AND TIDES. BECAUSE IT IS NOT ALWAYS POSSIBLE TO PREDICT ACCURATELY WHERE THE SPILLED OIL MAY END UP, AERIAL SURVEILLANCE IS ALWAYS ADVISABLE. IN ADDITION, SOPHISTICATED COMPUTER MODELS CAN GIVE AN EXCELLENT PREDICTION.

STRATEGY (2)

IN PLANNING THE RESPONSE TO OIL SPILLS A KNOWLEDGE OF THE COASTAL SENSITIVITIES IN THE THREATENED AREA WILL ENABLE THE BEST USE TO BE MADE OF RESPONSE RESOURCES. SENSITIVITY MAPPING IS A SEGMENT BY SEGMENT ANALYSIS OF COASTLINE; PROVIDES AN OVERALL PICTURE; IDENTIFIES PRIORITIES FOR PROTECTION; AND RESPONSE STRATEGIES RECOMMENDED FOR SPECIFIC GEOGRAPHIC AREAS. SOME OF THE FACTORS TO INCLUDE MIGHT BE: FISHERIES; MARICULTURE, BIRDS AND OTHER WILDLIFE, ENVIRONMENTALLY SENSITIVE AREAS (WETLANDS); INDUSTRIAL USE (POWER PLANTS):DESALINATION PLANTS; AMENITY BEACHES ; YACHTING / RECREATIONAL AREAS.

IN INSTANCES WHERE THE OIL WILL THREATEN THE SHORELINE IT IS IMPORTANT TO DECIDE, IN ADVANCE, WHICH AREAS ARE TO BE GIVEN PRIORITY FOR PROTECTION.

FACTORS TO CONSIDER ARE: WHERE TO DEFLECT OIL TO A SHORELINE; AVAILABILITY OF LOCAL KNOWLEDGE; PRACTICALITIES OF PROTECTING A PARTICULAR RESOURCE; SEASONAL VARIATIONS / VARYING PRIORITIES.

AGREED UPON PRIORITIES SHOULD BE READILY AVAILABLE AND PUBLISHED.

AS FAR AS RESPONSE POLICY, RESPONSE IS NOT AN EXACT SCIENCE AND THEREFORE OPTIONS SHOULD BE FLEXIBLE TO ALLOW FOR THE BEST COMBINATION OF RESPONSE AS THE SITUATION DICTATES. YOU ARE OFTEN FACED WITH LIMITATIONS SUCH AS ACCESS TO A SPILL SITE AND, AS PART OF THE PRE-PLANNING, WHAT SUITABLE VEHICLES CAN BE USED, WHAT EQUIPMENT AND ITS LOCATION, BE IT ADJACENT TO RISK OR A CENTRAL STOCKPILE. EQUIPMENT CLOSE TO A SPILL SITE WILL PROVIDE A RAPID RESPONSE AND QUICK DEPLOYMENT BUT MAY BE DIFFICULT AND COSTLY TO MAINTAIN. IN ADDITION SECURITY MAY BE A PROBLEM. A CENTRAL STOCKPILE MAY BE EASIER TO CONTROL BUT MAY BE REMOTE AND TAKE TIME TO MOBILISE.

MANPOWER REQUIREMENTS CAN BE A PROBLEM BUT, IT IS ESSENTIAL TO HAVE A DETAILED MOBILISATION PROCEDURE. WILL IT BE BY PAGER OR A CASCADING SYSTEM OF PHONE CALLS. HOW DO YOU CONTACT CONTRACT LABOUR; WHAT SPEED OF MOBILISATION IS REQUIRED. IN REALITY YOU MIGHT NEED TO KNOW WHERE 3 OR 300 RESPONSE PERSONNEL WILL COME FROM.

CLEARLY DETERMINED TEMPORARY STORAGE SITES NEED TO BE IDENTIFIED AS IT IS VERY IMPORTANT TO KNOW WHAT TO DO WITH ANY RECOVERED OIL. ESSENTIALLY, SUCH SITES SHOULD BE CLOSE TO THE SPILL AND MUST BE LOCATED ABOVE THE HIGH WATER MARK. FURTHER CONSIDERATION MUST BE GIVEN TO EVENTUAL DISPOSAL AND IN

PARTICULAR HOW TO RECOVER OIL FROM TEMPORARY STORAGE. CAN GULLEY SUCKERS GET TO THE TEMPORARY STORAGE SITES? IS THERE A SLOP RECEPTION FACILITY? WILL IT NEED TO BE TRANSPORTED BY ROAD OR SHIP? NOT MANY AUTHORITIES ARE VERY INTERESTED IN WASTE OILY MATERIAL. EXXON VALDEZ - SHIPPED 4000 MILES TO OREGON; ARAGON SPILL ON MADEIRA - TO ROTTERDAM!

SO, YOU CAN SEE THIS ASPECT CAN, AND WILL, BE A COSTLY EXERCISE AND REQUIRES MUCH PLANNING.

STRATEGY (3)

I HAVE ALREADY COVERED THE ROLE OF THE LEAD AGENCY IN THE EVENT OF A MAJOR SPILL AND SO I WILL ONLY EMPHASISE HERE THAT THE ROLES AND RESPONSIBILITIES OF ALL THOSE INVOLVED IN A RESPONSE MUST BE CLEARLY DEFINED AND UNDERSTOOD BY EVERYONE.

EFFECTIVE COMMUNICATIONS IS ALSO VITAL AS REGULAR REPORTS NEED TO BE RECEIVED AT THE COMMAND CENTRE AS WELL AS RECEIVED BY THE RESPONDERS. IN EVERY DRILL I HAVE BEEN INVOLVED WITH COMMUNICATIONS HAVE ALWAYS BEEN A CONCERN, WHICH LEADS ME NICELY INTO TRAINING.

THERE IS NO POINT IN HAVING A PLAN THAT IS NOT REGULARLY EXERCISED. SITTING IN A LIBRARY AS A TROPHY IS NO USE AT ALL. IT NEEDS TO BE ACCESSIBLE, MAINTAINED AND TESTED, JUST LIKE ANY PIECE OF OIL SPILL EQUIPMENT. PERSONNEL SHOULD BE TRAINED IN ITS USE AND BE FAMILIAR WITH ITS CONTENTS. AFTER A SPILL OR DRILL, IT SHOULD BE LOOKED AT TO SEE IF IT COULD BE IMPROVED. REMEMBER A PLAN IS OUT OF DATE ALMOST AS SOON AS IT IS ISSUED SO IT IS ESSENTIAL TO KEEP IT UP TO DATE

OPERATIONAL SECTION

THE OPERATIONAL SECTION IS, TO ALL INTENTS, THE ACTION SECTION AND IS THE PART OF THE PLAN THAT YOU SHOULD HAVE READY TO HAND IN THE EVENT OF A SPILL. IT SHOULD SET OUT THE EMERGENCY PROCEDURES THAT WILL ALLOW RAPID MOBILISATION OF RESOURCES AND AN EARLY RESPONSE TO THE SITUATION.

IN PARTICULAR, IT SHOULD CONTAIN A NOTIFICATION SECTION - HOW TO REPORT INCIDENTS AND PROVIDE A PRELIMINARY ESTIMATE OF THE EMERGENCY, IDENTIFYING RESOURCES IMMEDIATELY AT RISK.

THEN THERE MUST BE A CLEAR NOTIFICATION PROCESS TO ACTIVATE KEY TEAM MEMBERS AND THE RELEVANT AUTHORITIES.

ONCE THE TEAM IS GATHERED TOGETHER, THEN IT IS NECESSARY TO REVIEW THE INITIAL RESPONSE PRIORITIES, THAT SHOULD , OF COURSE, HAVE ALREADY BEEN DETERMINED IN THE PLANNING PHASE.

CRAIG IS GOING TO BE COVERING STRATEGIES IN THE NEXT PRESENTATION, AS WELL AS THE CLEAN-UP OPERATIONS, SO I SHALL NOW HAND OVER TO HIM.

Japanese Spill Experience -- the Nakhodka and Diamond Grace Incidents

Tsunemasa {Masa} Shigyo

Mobil Sekiyu Kabushiki Kaisha (MSKK)
Tokyo, Japan

INTRODUCTION

Ladies and gentlemen

Thank you for inviting me to attend this interesting and valuable conference and to address you on the subject of the Japan's recent experience of two major oil spill incidents.

I am the Incident Commander of the Northern Pacific Rim MRRT (Mobil Regional Response Team) that responds to major oil spill incidents.

In my address, I will cover the Nakhodka incident in the Sea of Japan and the Diamond Grace incident in the Bay of Tokyo, and the lessons-learned from these two spill incidents.

THE NAKHODKA INCIDENT

On January 2, 1997 the Russian tanker Nakhodka (19,684 DWT), en route from Shanghai, China to Petropavlovsk, Kamckatka Peninsular, Russian Federation, broke up in stormy seas some 110 kilometers north-north-east of the Oki Island in the Sea of Japan.

The tanker, built in Gdan'sk, Poland in 1970 (near 27 years old), was carrying a cargo of 19,000 kiloliters of low pour point medium fuel oil for power generation use. With the exception of the master, all 31 members of crew were found adrift in lifeboats and rescued by the Japanese Maritime Safety Agency.

The tanker broke into two sections, which resulted in a spill of some 6,200

kiloliters of oil from three ruptured tanks. The spilled oil began to drift as well as the upturned bow section that contained about 2,800 kiloliters of cargo. All attempts to contain the spilled oil offshore and efforts to apply dispersants by aircraft were hampered by the continued stormy weather.

The stern section sank soon after the incident and lies at a depth of more than 2,500 meters with about 10,000 kiloliters of cargo oil on board. Investigations with a deep-sea unmanned submarine showed that the stern section was leaking oil, at a rate of 3 to 14 kiloliters per day, from two tanks which together originally contained some 2,500 kiloliters of oil. Several Japanese state-of–the-art technologies can salvage the stern section but such salvage operations are not economically justified.

The oil contained in the stern section, however, is not considered to pose a significant threat to the coastal environment; the leaked oil already dispersed naturally at sea. And undamaged tanks will not easily be corroded in the deep waters where the temperature is below zero degree centigrade, and oxygen concentration is extremely low.

The upturned bow section drifted toward the coast of Hokuriku District, leaking oil at a slow rate but continuously. A series of attempts to capture the bow section and fix a line to it were unsuccessful due to the stormy weather, a strong swell and lack of suitable attachment points.

On January 7, the bow section grounded on rocks only 200 meters off the shallow rocky shore of Mikuni Town, Fukui Prefecture. Following the grounding, a substantial volume of oil was released, causing heavy contamination of the immediate vicinity. Most of the remaining oil in the bow section was pumped out and transferred to coastal tankers.

The oil that was released when the Nakhodka broke up formed very stable and persistent water-in-oil emulsions. Patches of such emulsions drifted and stranded at various locations on the coastline extending over more than 1,000 kilometers from the Oki Island, Shimane Prefecture in the west to Akita Prefecture in the east covering ten prefectures. The increased persistence of the emulsified oil allowed it to travel great distances.

The most heavily affected shorelines were those in the vicinity of Mikuni Town and those along the west coast of the Noto Peninsula. The shorelines of Hyogo Prefecture and Kyoto Prefecture were also severely contaminated while those of Niigata, Yamagata and Akita Prefectures were less affected. More than 80 vessels belonging to the Maritime Safety Agency of Japan and the Japan Self Defense Force were engaged in oil recovery operations. In addition, several hundred fishing boats were mobilized to collect viscous oil at sea.

The Petroleum Association of Japan (PAJ) provided some 13,000 meters of coastal oil booms, 26 units of skimmers, 6 units of beach cleaners and 144 portable storage tanks and a number of trained operators. The equipment sent to the affected areas was near half of the PAJ's large response equipment stored in its 6 stockpile bases in Japan. This equipment provided was used to recover floating oil and to protect sensitive areas and facilities such as water intakes to seven nuclear power stations.

Shoreline cleanup operations were organized by prefecture governments, municipal authorities and fishery associations, using both manual and mechanical methods. More than 500,000 man-days were expended to remove the stranded oil from contaminated beaches in the five most heavily affected prefectures. About half of the work was provided by volunteers from all over Japan, and the remaining half by local residents, municipal workers, the Self Defense Force, fire brigades, etc.

Cleanup operations, both onshore and offshore, are estimated to have generated 50,000 tons of oily waste. Several large pits were excavated to provide temporary storage of this waste before the final disposal. About 40,000 tons of the waste was transported, by ship and road, to incineration plants and other industrial waste disposal facilities throughout Japan while the remaining waste was disposed of locally.

By the end of May, all prefectures affected by this incident had declared that the cleanup operations had been completed. The Nakhodka incident was undoubtedly the most serious spill that Japan had ever experienced; the

total amount of claims for compensation reached 32 billion yen (some 260 million dollars).

THE DIAMOND GRACE INCIDENT

Next, I will touch on the Diamond Grace incident occurred in the Bay of Tokyo the area around which is the most heavily populated and the most heavily industrialized in Japan.

On July 2, 1997 morning, just six months after the Nakhodka incident, the Panamanian tanker Diamond Grace (259,999 DWT) ran aground in the shallow waters 6 kilometers south-east of Yokohama, near the Uraga Channel at the mouth of the Bay of Tokyo at 10:05 a.m. The VLCC tanker, built in Japan in 1994 (3 years old), was bound for Mitsubishi Oil's refinery in Kawasaki with 257,042 tons of crude oil from the United Arab Emirates.

As a result, the shell plating of three starboard tanks (No.1 and No.3 starboard cargo tanks and No.2 ballast water tank) was fractured, and Umm Shaif crude was believed to spill into the sea from the two cargo tanks. No.1 and No.3 starboard tanks were originally laded with 14,957 tons and 23,644 tons of crude oil, respectively. Oil from the ruptured tanks stopped leaking around noon. Initial estimates of the volume of oil spilled were in the region of 15,000 kiloliters which was more than twice the quantity of oil spilled from the Nakhodka in the Sea of Japan in January.

The incident site is one of the most congested shipping lanes in the world. More than 700 ships pass through the narrow channel every day. If the lane were once closed, it would give significant adverse impacts on Japan's economic activities. In addition, the Bay of Tokyo has more than 650 water intakes to industrial plants including several power generation plants. Contamination of such cooling systems would inflict untold mischief on the community. The bay is also rich with wild birds, marine life and good fishing grounds. It is not exaggeration to say that the whole bay is one huge sensitive area.

The spill was becoming a great threat to economy and ecosystems. Tokyo

was suddenly thrown into a commotion. Prime Minister Ryutaro Hashimoto ordered the Transport Ministry to set up a task force. At this moment, both the Petroleum Association of Japan and the Mobil Regional Response Team were already on standby.

As forecasted by the PAJ using its spill trajectory simulation model, the oil spread rapidly and created a large slick of 9.5 kilometers long and 7 kilometers wide in the center of the bay. More than 150 response vessels, including 76 patrol boats and 4 recovery boats belonging to the Maritime Safety Agency, were mobilized to deploy booms, recover oil with absorbent pads and spray dispersants. The major part of the cleanup operations was completed within 4 days of the incident.

The audience here may wonder why the cleanup response was completed so quickly. The fact is, the actual volume of oil spilled turned out to be 1,500 kiloliters, only one tenth of the initially estimated 15,000 kiloliters, while the response operations were conducted based on the initial estimate.

The audience here may again wonder why the volume decreased to one tenth. The fact is, much of the cargo reported missing from the No.1 starboard tank was located in No.2 starboard tank for ballast water that had been empty at the time of grounding.

The grounding resulted in three gashes on the hull of the Diamond Grace; one at the bottom of the No.1 starboard tank, and each one at the bottom of the transverse bulkhead between the No.1 and No.2 starboard tanks and between the No.2 and No.3 tanks.

At the initial stage, crude oil spilled into the sea through the gash at the bottom of the No.1 starboard cargo oil tank while crude oil poured into the No.2 starboard ballast water tank from the No.1 and No.3 starboard cargo oil tanks through the gashes on the bulkheads.

The spill to the sea from the No.1 starboard tank stopped when the oil level went down to a level equivalent to the sea water level. Crude oil, however, still continued to flow into the ballast water tank from the adjoining two

cargo oil tanks.

Next, sea water came into the No.1 starboard tank, and into No.2 and No.3 starboard tanks, pushing up oil, until all oil surfaces of all tanks reached the same level as the surface of the sea water. This is the answer to your question why the volume of oil spilled was one tenth of the initial estimates.

With the relatively small volume of oil spilled and quick response actions taken, the total amount of claims for compensation was only some 1 billion yen (some 10 million dollars).

Prevention of a spill incident can only be achieved by ensuring that tankers are well designed, well constructed, well maintained and well operated. Nevertheless, the risk of an oil spill incident always remains no matter how fine the weather is. The Diamond Grace incident happened due to a very simple operational error in the daytime in calm seas.

LESSONS-LEARNED FROM THE INCIDENTS

Both of the Nakhodka incident and the Diamond Grace incident left a lot of lessons-learned. It is impossible to introduce all of them within the time of my presentation but I will introduce some important points among them.

Importance of a Table-top Exercise

In November 1996, just two months before the Nakhodka incident, the Northern Pacific Rim MRRT (Mobil Regional Response Team) conducted a table-top spill response exercise for three days in Chiba on the Bay of Tokyo. Participants were more than 180 people from the Maritime Safety Agency (including its National Strike Teams), the Maritime Disaster Prevention Center, local government agencies, shipping owners and agents, onshore and offshore responders, oil companies, fishery unions, news reporters, etc.

The exercise were run on a real time basis according to a preplanned scenario based upon a simulated emergency affecting a Mobil affiliate and the communities on the Bay of Tokyo area. In this type of exercise,

exercise players have not been informed of any of the scenario and should respond to the situation as presented. The primary objectives of the exercise were to train, test and exercise the ability of the team members to respond, organize and provide support during a major oil spill, and to coordinate and integrate the team actions with private organizations and appropriate government agencies.

The Chiba exercise proved to be of great value in the two real incidents. People who had participated in the exercise could effectively performed their roles and responsibilities as previously identified in the table-top exercise. They could successfully implement the reactive (emergency) phase of spill management and could quickly move to the proactive (project) phase of spill management. Especially in the Diamond Grace incident, everything was well done in a proactive manner because the situations were, by chance, almost the same as those assumed in the exercise. I recommend you to conduct such an exercise based on a most likely scenario as we did in Japan.

Necessity of an Integrated Contingency plan

The key to effective response activities is good organization and coordination among parties involved. In the Nakhodka incident, many of the prefectures involved in spill response concentrated on their own cleanup operations with little attempt to coordinate with other prefectures. As a result, all resources such as equipment or manpower could not fully be utilized to minimize damage from the incident.

They could better utilize such resources if they had had a single entity in overall charge to implement a coherent strategy. An integrated contingency plan was also necessary to achieve full coordination of government agencies and industry at all levels of oil spill response.

I recommend you each country will have an effective national contingency plan that clearly defines responsibilities. It is appropriate that government agencies take overall responsibility for oil spill planning and response. I also hope that the five Caspian states will successfully establish a truly workable coordination plan to protect the environment.

Training for Operations/Maintenance of Response Equipment

PAJ (Petroleum Association of Japan) provided response equipment and efficient services to support the shoreline cleanup effort in the two major spill incidents. However, there was a tendency for local people to have serious operating problems after PAJ personnel left one scene for another scene.

Training programs of equipment exercises should be developed in order to familiarize operators with the running and maintenance of such large-scale response equipment as provided by PAJ. Visual training materials, such as videotapes and easy-understandable instruction books, would also help to alleviate this problem in the future.

Over-response rather than Under-response

At the initial stage immediately after the Nakhodka incident, people were optimistic of impacts from the spill while, at the same stage in the Diamond Grace incident, they held a pessimistic view of future development of the incident. Which was right?

As results from incident can not be assessed precisely at the initial stage in most cases, it is better to over-respond than to under-respond. Should any individual in charge of the impact assessment be uncertain as to the nature of an incident, he or she should err on the side of safety and treat the incident as a crisis.

Sensitive Area Maps/Oil Trajectory Simulation Models

In order to minimize damage from an oil spill incident, there are several areas we should protect from biological and economic standpoints. Such areas called "sensitive" areas could include marshlands, drinking or cooling water intakes, fishing grounds, coral reefs, etc.

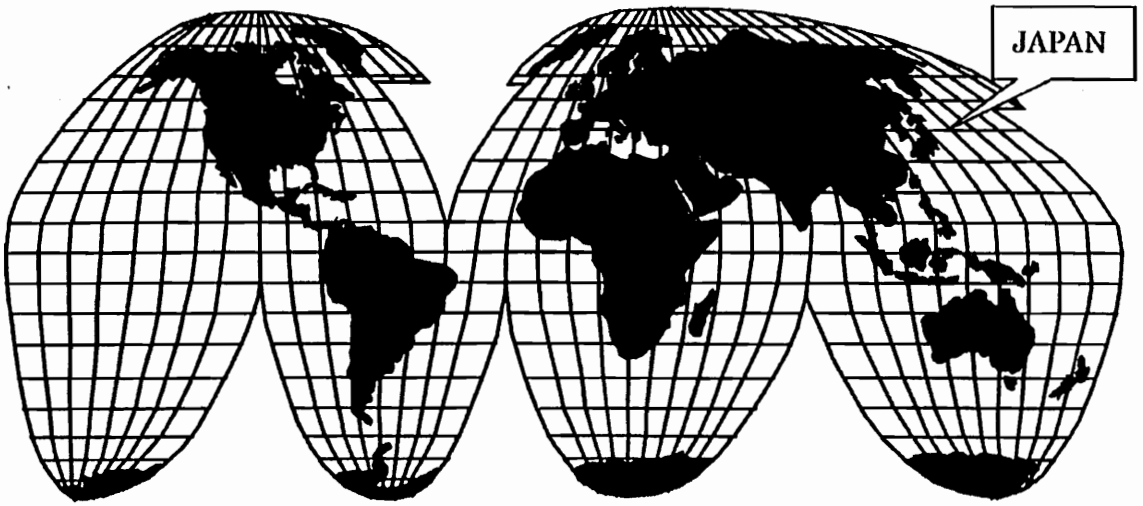
Fortunately, the sensitivity maps were readily available for the areas affected by the two major oil spills and helped responders determine the

most vulnerable sites. In addition, an oil trajectory simulation model developed by PAJ for the Bay of Tokyo was available and utilized for establishing sensitive area protection and oil containment plans in the Diamond Grace incident. As one of the lessons-learned from the Nakhodka incident, PAJ has developed a series of trajectory models that cover allover Japan sea areas. Both sensitivity maps and oil trajectory models are essential tools for establishing response strategies in an effective manner.

We can have economic growth, energy development and a clean environment. In fact, we must have all three. Recognizing that, we can go forward with confidence to meet long-term challenges that lie ahead, and build an even stronger society in which we can say "yes, we are prepared for oil spills".

Thank you.

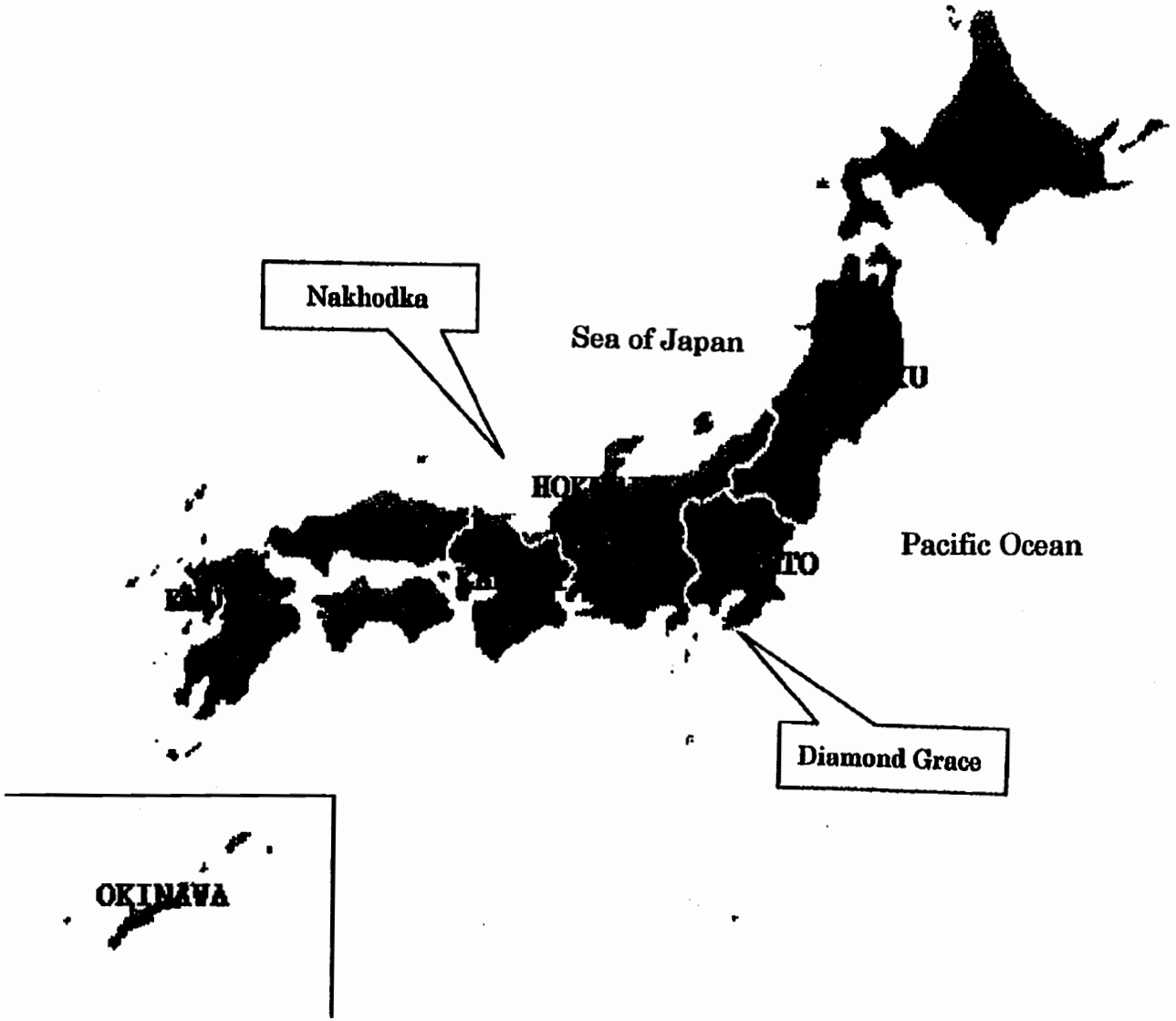
JAPANESE SPILL EXPERIENCE



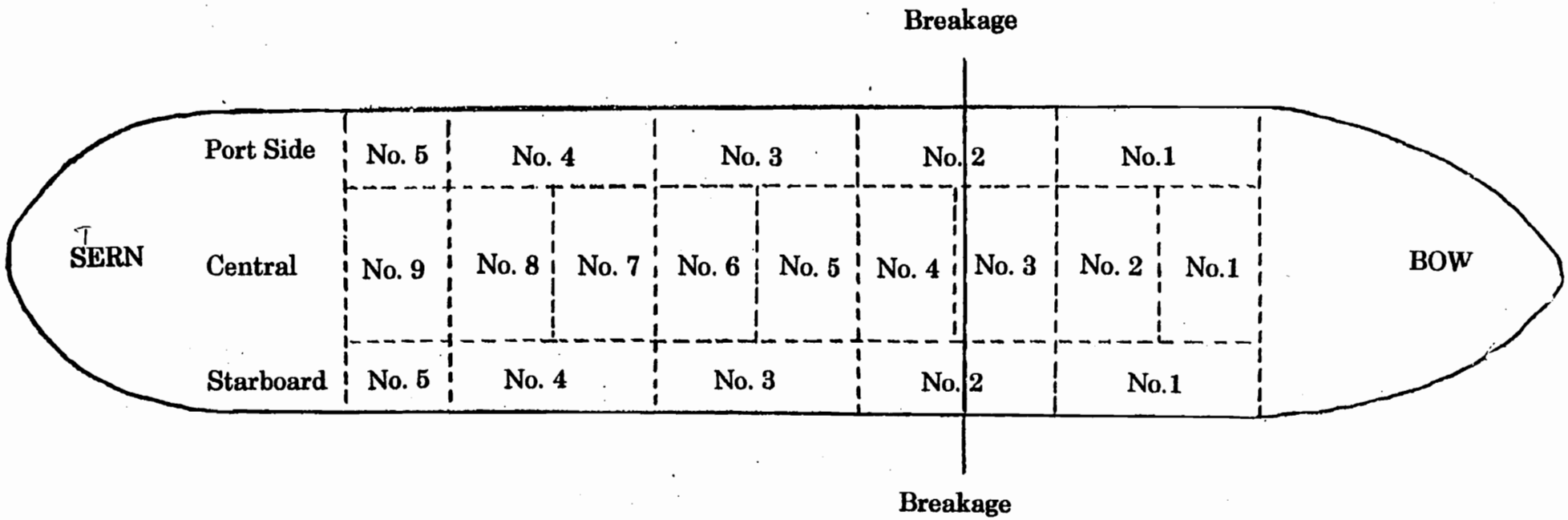
The Nakhodka Incident

&

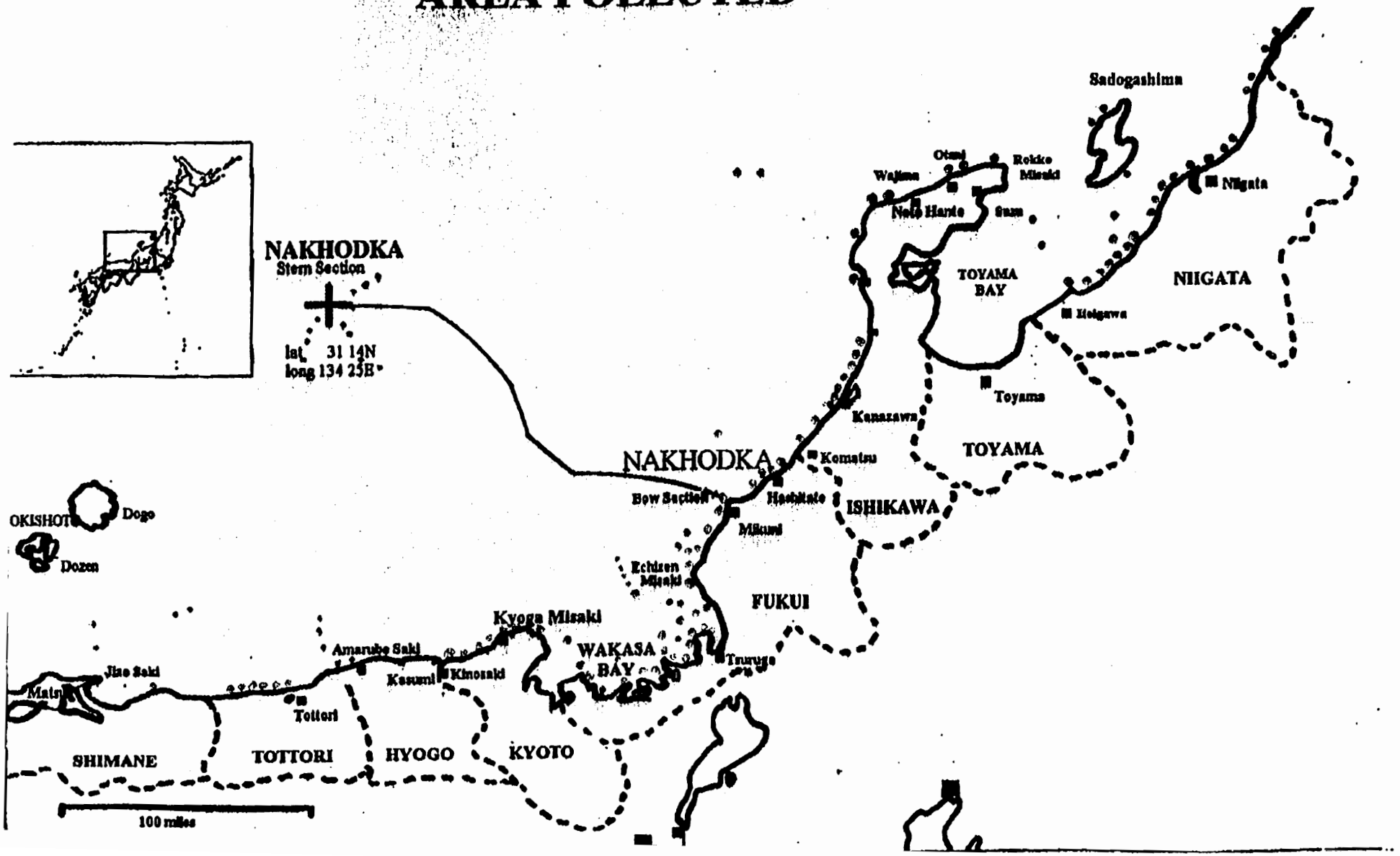
The Diamond Grace Incident



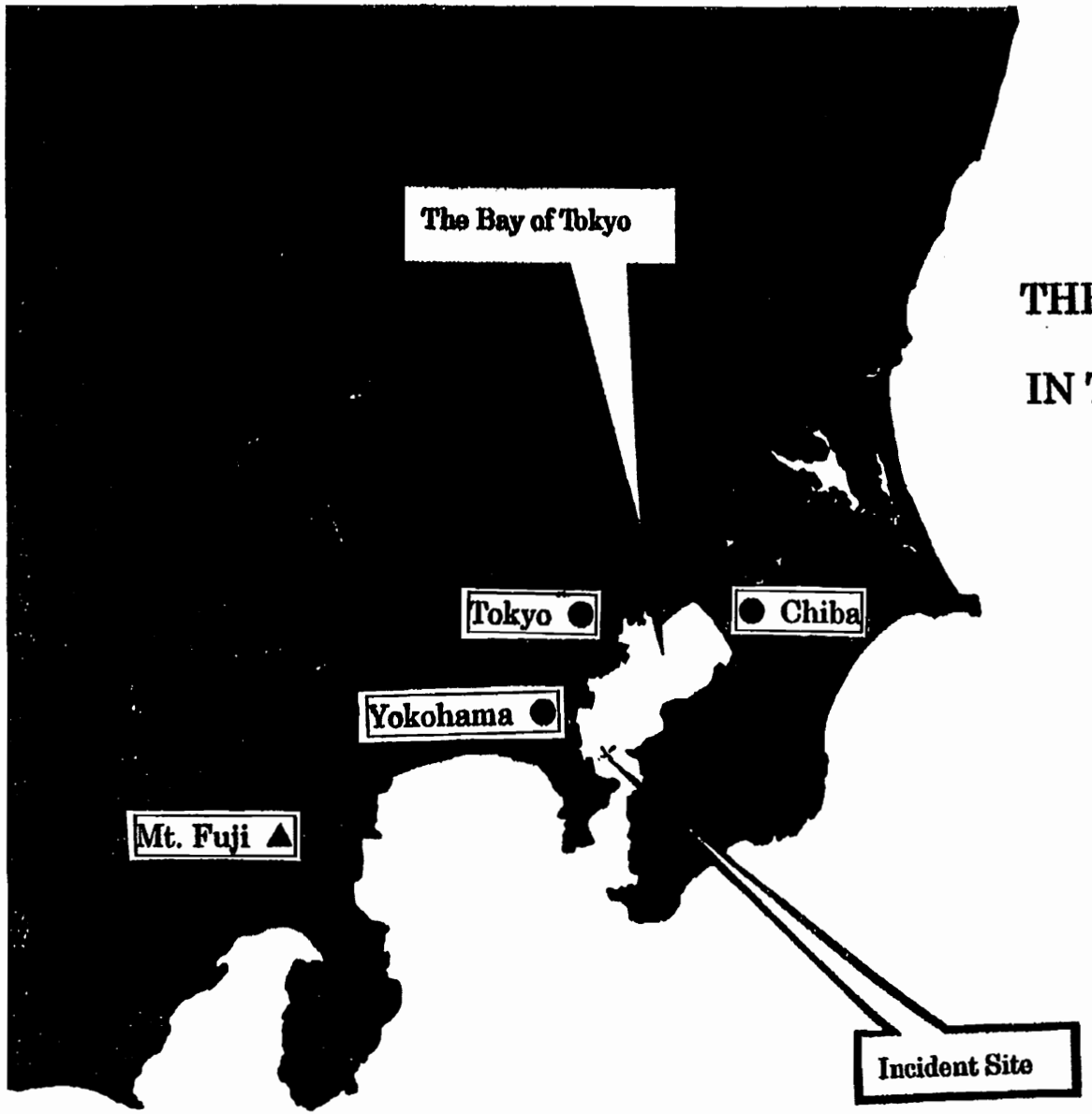
M/T NAKHODKA - TANK ARRANGEMENT



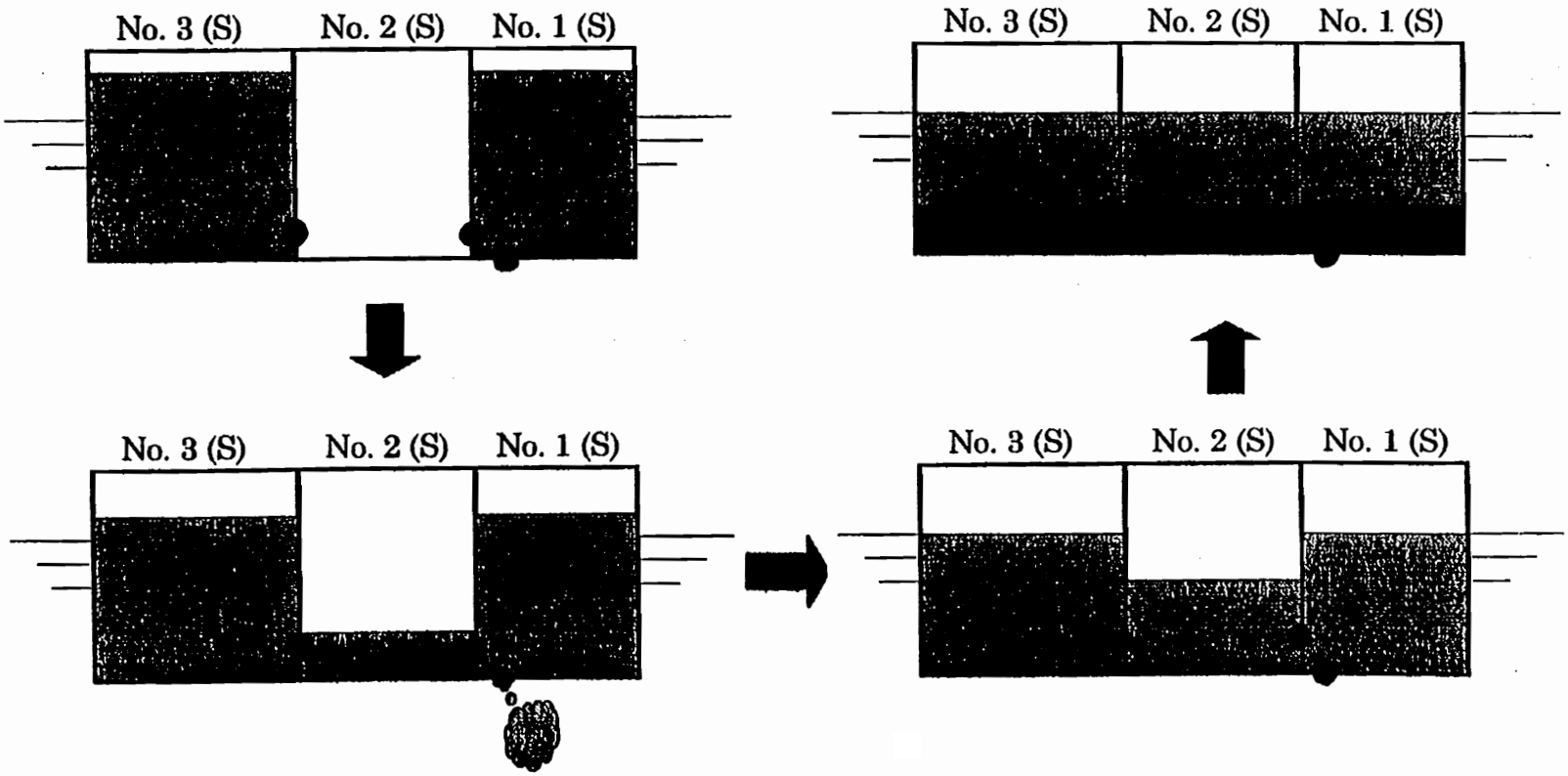
AREA POLLUTED



THE DIAMOND GRACE INCIDENT IN THE BAY OF TOKYO (JULY 1997)



A MYSTERY OF THE DIAMOND GRACE INCIDENT



LESSONS-LEARNED
FROM
THE NAKHODKA/DIAMOND GRACE INCIDENTS

- ☆ IMPORTANCE OF A TABLE-TOP EXERCISE
- ☆ NECESSITY OF AN INTEGRATED CONTINGENCY PLAN
- ☆ TRAINING PROGRAMS FOR RESPONSE EQUIPMENT OPERATIONS
- ☆ OVER-RESPONSE RATHER THAN UNDER-RESPONSE
- ☆ SENSITIVE MAPS/OIL TRAJECTORY SIMULATION MODELS
- ☆ OTHER (WASTE DISPOSAL, ETC.)

NAKHODKA Oil Spill Incident

Hiroyuki Kimoto

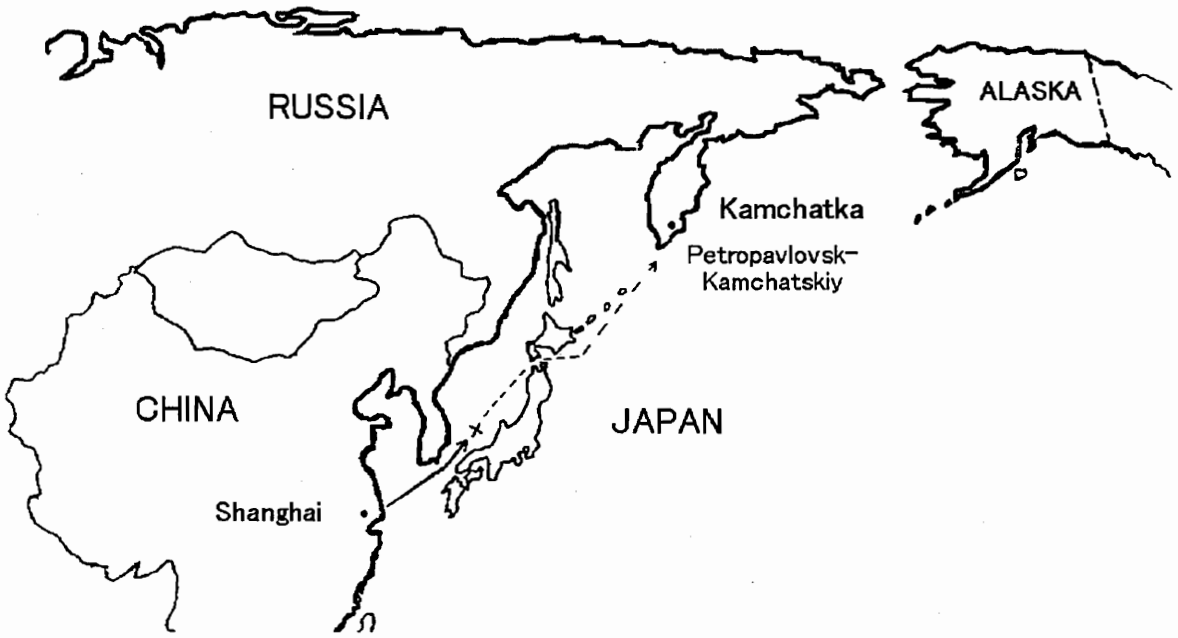
Abstract

Early in the morning of 2nd January 1997, the 13,175 gross tonnage Russian tanker NAKHODKA suddenly broke into two parts while crossing the Sea of Japan on the way from Shanghai to Petropavlovsk-Kamchatskiy. The stern part sank while the bow section drifted for five days and was washed ashore on the coast near Mikuni in the Fukui Prefecture of Japan.

All of the 31 crew except the captain were rescued by the Japanese Maritime Safety Agency and the Maritime Self Defence Force, however heavy grade C fuel oil in the cargo tanks spilled out instantly from the damaged section. Of the 19,000 kl total of cargo carried, the estimated volume of the spill was some 6,240 kl which drifted for some ten days in rough sea conditions, and in a weathered state it reached the shoreline of nine coastal prefectures between Shimane in the west and Akita in the northeast. Meanwhile, a large volume of oil had remained and this kept spilling out from the bow section which had grounded on the coast north of Mikuni Town.

In order to recover the spilled oil, various measures with combinations of many kind of equipment were deployed and more than a million people in total including volunteers made every effort. Consequently most of the spilled oil was recovered and put into temporary pits and drums for later collection and transport to adjacent port. The volume of recovered oil exceeded 40,000 tons, equivalent to the volume of 220,000 drums. The recovered oil was transported to eighteen disposal facilities widely located around the country, by a total of 65 vessels and countless truks, and finally incinerated. However, those facilities became saturated, and so transportation had to be stopped, so that it took several months untill mid june to finish the clean up.

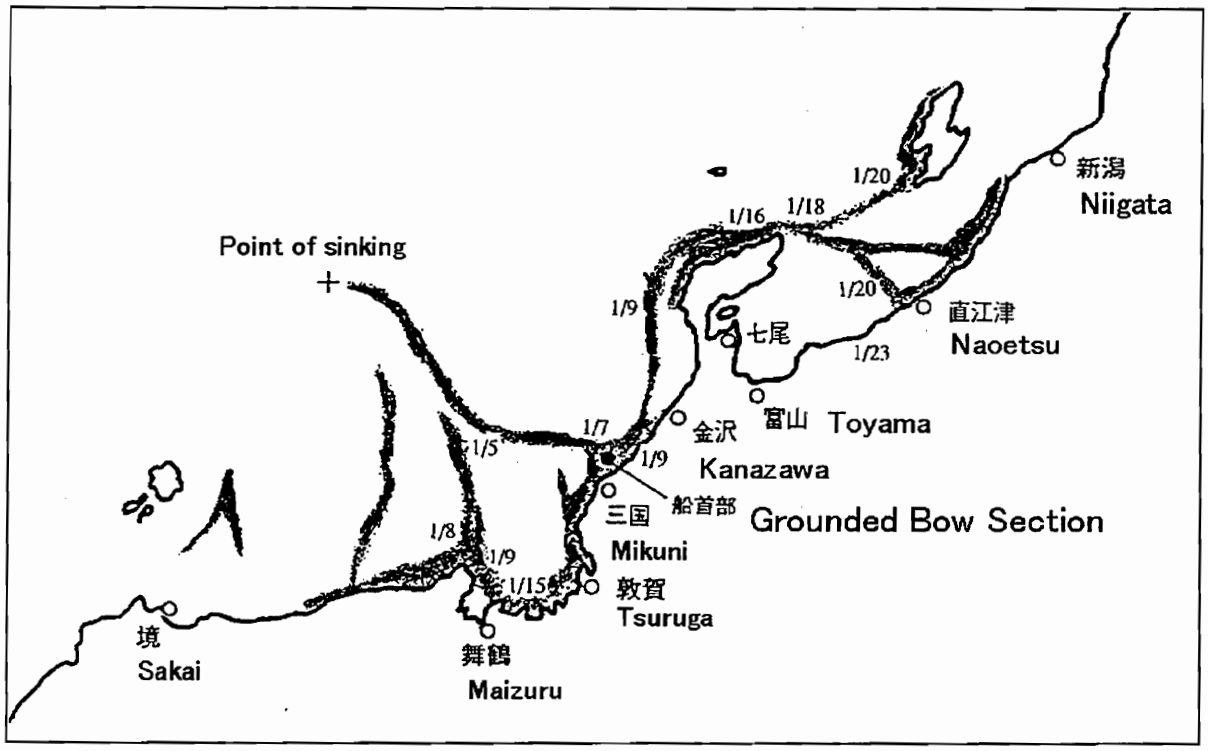
I will focus on the part that Maritime Disaster Prevention Center(MDPC) of Japan played in the operation and how it responded, as well as how some particular recovering devices and techniques were deployed in the site which are not necessarily used in other countries.



INITIAL RECOVERY CONTRACT

At 17:10 on 5th January 1997, MDPC received a contract from the owner of NAKHODKA's agent and then immediately responded by dispatching staffs to the site of the disaster. The contracted work varied widely, including in the early stages spilled oil recovery in the offshore area and along the coastline, arranging for ways of transportaion and disposal facilities, disposition of devices and equipments to be used, and registration of claim procedures. It was the largest scale operation of this kind ever experienced in Japan.

Additionally, MDPC received a governmental order from the Maritime Safety Agency(MSA), concentrating on the extraction of the remaining oil inside the bow section. This extraction work was done in parallel from offshore by response boats and from shore by constructing a Temporary Jetty Road to the grounded bow section.



RESPONSE IN THE EARLY STAGES

MDPC set up a Local Countermeasures Office(LCO) in Fukui Futo Co., at Fukui Port in Mikuni Town on 7th January so as to coordinate the early stage responses. The primary object at this stage was to minimaize coastal pollution, so that the first steps were to recover the spilled oil on the sea surface and prevent oil which had come ashore from being carried out to sea again. This involved host of emergency measures such as the charting and operation of numbers of vessels, tanker truks with suction hoses, the construction of provisional pits for the storage of recovered oil, arranging insurence for the threatment facilities and transportation, various incidental negotiations and related activities.

Telephone lines were always busy because of continuous inquiries from outside, some quite hysterical, and persistent inquiries from the press, and even exclusive lines for our use were not exempt from interference. Insurarance surveyors, experienced specialists in salvage and support activities, operators of suction trucks and other recovering devices and experts in other fields, along with officials of the Maritime Safety Agency and the Fukui Prefectural Government, all got together at the LCO. The LCO functioned in a well organized manner, and day by day everybodey became aware that

we are all fellow workers.

OIL SPILL RECOVERY

The recovery of spilled oil offshore and washed oil along the coastline which might spill again was given top priority. Systematic recovery activities have to be planned, covering selection of the recovery method, arranging a secure storage place, transportation, and final treatment. Spilled oil on the sea surface had been weathered and became stiffened and widely dispersed, so that a phical recovery system, Bucket Grab Hopper Barge might be basically appropriate rather than oil skimmers. As for an oil boom, it didn't work in the rough sea conditions in open sea area, so that it was decided not to use it except in very limited sea area.

OFFSHORE OIL RECOVERY-

It is well known to be hard to do offshore recovery in winter in the Sea of Japan since sea conditions are very bad, wave height become 8m over, however, from long experience two to four fine days follow after each period of rough weather. Fortunately from 8th January to 13th, there was calm workable weather even in offshore areas for six days. It was thought that if larger scale organizational recovery activities by "Bucket Grab Hopper Barge" could be deployed during this calm six days, it might be more effective. From on 17th January the working area was divided into four blocks and 4 types of work vessels consisted of two "Bucket Grab Hopper Barges", "RO-skimmer(weir type skimmer) equiped on the ocaen tug boat Koyo-maru", "mulutipule dredging vessel equiped with cyclone oil skimmer", "oil concentrating well type recovery boat" were allocated to each block. The critical factor was obtaining accurate information on spilled oil behaviour, including where it was drifting.

BUCKET GRAB HOPPER BARGE

This type of work boat was recognaized from past exprience in Japan to be the most suitable for recovery of highly viscous oil, especially moused oil, so that MDPC made arrangement to hire those boats from salvage companies in the early part of this oil recovery operation. However, salvage companies were unable to act on the request at that moment, partly because a mobilization fee was not guarnteed by the insurance company and partly because the time was immediately after the New Year's holiday. Pollution insurence did not guarntee the mobilization cost of oil recovery work and it was usually charged to the ship owner, which meant additional risk to the owner's side. On 9th January the large bucket grab hopper barge "Kotobuki" had become available by the oil disposal company and MDPC ordered "Kotobuki" to engage in oil recovery operation. Then later on, sister work boats "Daiko" became available also. And we informed the insurance company of this fact and offered them to hire this grab hopper barge "Daiko", however, further charters were rejected. However, after "Ktobuki" played great role and recovered 450 tons oil within two days on 12th and 13th January, it was understood how Bucket Grab Hopper Barge was efficient to recover the stiffened oil, and it was agreed to hire the sister boats. And other 4 more sets of Bucket Grab Hopper Barges were deployed, as a result about 1,000 tons of oil(including 530 tons by "Kotobuki") in total was recovered by 5 sets of Bucket Grab Hopper Barges.

In the case of "Kotobuki", she arrived at Mikuni Port on 11th January and did recovery work on the 12th and 13th. In order to improve the recovery rate, she tried to deploy a J-shaped boom with an fishery patrol boat at the other end, but it was not very successful because the fishery patrol boat was not familiar with handling an boom and used the grab bucket only, and as listed above recovered 530 tons oil.

OIL SKIMMERS

Two types of oil skimmer, Weir-type and Disk-type, held by the Petroleum Association of Japan, were used on this incident. But it was found impossible to use them in the

off-shore area since sea condition was very rough, and their use was limited to near shore areas. However, as waves made their work inefficient and the spilled oil did not drop into the inside of the skimmer because the oil turned into hardened lumps, therefore they were dismounted from their hulls and then used to pump oil up from shoreline to oil drums or Fastanks. Although used in this irregular manner, this work still produced a favourable result and helped to finish the cleaning up operation in a short period of time.

DESMI 250 was installed on Naruto-maru, a tug boat, to recover spilled oil in combination with a J-shaped oil boom deployed after careful preparation on 13th, but this type of skimmer did not perform well because the spilled oil had changed to congealed lumps and it was not a smooth liquied any longer.

Another three oil skimmers were tranported to the area from Russia, and they tried to recover oil clumps in Wakasa Bay with a supporting vessel arranged by Japan. But again they could not produce a good result, because they were the same type of skimmer described above.

SHORELINE OIL RECOVERY-

SUCTION TANKER TRUCKS

Suction tanker trucks were used to suck up the oil washed onto the shoreline and put it into a storage pit. How frequently they could move back and forth between the polluted shoeline and the pit and how much oil they could bring at each trip were the fundamental points.

There were two ways for them to work; one was to pump up oil directry from the shoreline and other was from oil drums or fastanks. Also there were two types of truck; one had a big suction capability and the other had a big tank capacity, so it required careful combination to achive high efficiency.

However, we did not always have high efficiency since it was the first time they had been used for spilled oil recovery, and in many cases because the size of the suctionhose was different from the coupling of the trucks. Another difficulty proved to be the arrangement of accomodation and catering for the drivers.

Inspite of this, at the finish, about 600 trucks were so active that 5,800 kl of oil was transported to storage pits. It was a really impressive scene when a line of the suction tankers formed along the shore all together to suck up the oil. As a result of this experience, the following arrangements are recomended:

- carry recovered oil only after separation from water on site
- use the two different types of suction trucks in one single line of each (big suction capability truck and big tank capacity truck)
- connect shoreline and road by vinyl chloride pipe, and use a common suction hose

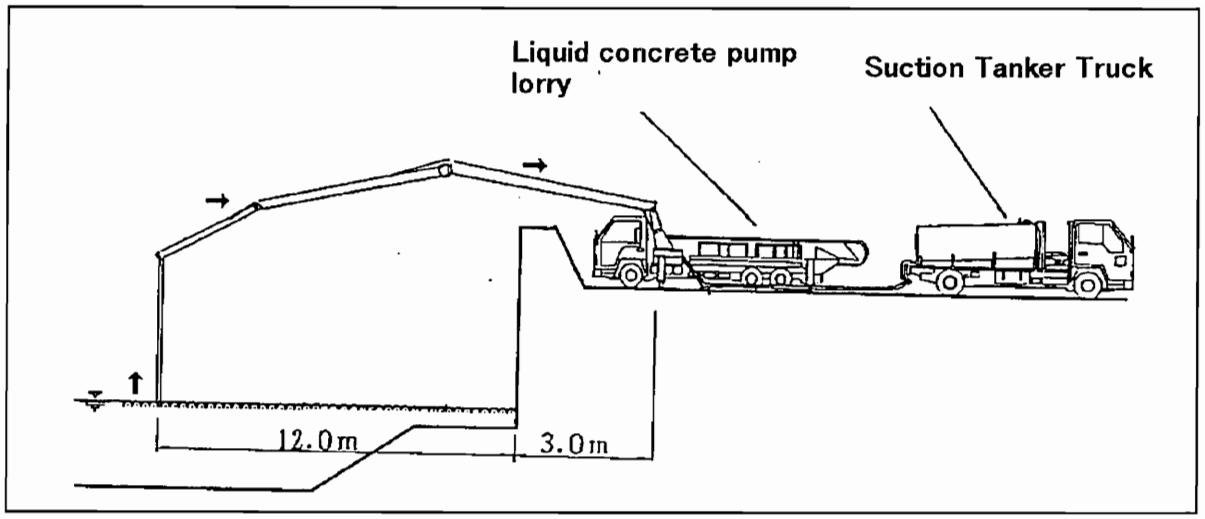
This experience proved that suction tanker trucks are capable of playing the role of the most powerful skimmer from the land side.

LIQUID CONCRETE PUMP LORRIES

Although, liquid concrete pump lorries were less powerful compared to the suction tankers, they could work at night in bad weather, they could be operated remotely for 24 hours continuously, and in addition they have a long nose hose. It was another very impressive scene to see these lorries working hard but silently.

After 10 January, they were operated in Mikuni Town area and around Tsuruga Nuclear Power Plant. Many ideas and expediencies were used, and they played vital role when they were connected with suction trucks in a continuous line. They possessed a big suction capability and it became possible to pump up oil lumps from a remote suction head on the shore. This was the most successful skimmer.

Its only problem happened when the suction hose choked up with some trash, which then stopped the machine. To overcome this situation, we needed to operate pump in the opposite direction or to clean up hose by human hands. But even so these lorries could be one of the most effective oil recovery machines, and it was a good thing that we could find this type of lorry everywhere in the country, being used for building construction.



DIAPHRAGM PUMP

Two diaphragm pumps were operated to transfer the recovered oil from the oil drums to the Fas Tank. These pumps were also used for the direct recovery from the sea surface when they were mounted on the work boats. They achived better than expected results.

MANPOWER

Besides fishermen, a great number of people from town councils including house wives and elder people, local governments' staffs, as well as students of high school and junior high school, ordinary citizens, policemen and of course many volunteers gathered from nationwide areas got together along the coast to recover the oil lumps washed up on the shore, fighting with endless waves. These people used ladles, shovels or even their hands directly to put oil into buckets and passed them by a chain of people to the oil drums on the road, the Fastanks or the skimming machines.

It could be said that early recovery could not have been achived without the combination of machines and these manpower operations. An accurate count of the volunteers could not be identified, although hundreds of thousands or a million may have come and worked. Inspite of there being many youngsters whose hair was colourfully dyed, they also diligent and hardworking.

STORAGE PITS

As described above, pits were essential for the temporary storage of recovered oil. Pit NO.1 was completed in the morning on 9th January after all night construction work consisiting of digging a big hole and building a dyke around it. The pit was 35m× 25m, 3m deep, and the capacity was about 2,600 m3(cubic meter). The hole was layed with blue plastic sheet on the bottom and the side wall so that oil did not ooze out. This NO.1 pit was only filled by the six day, another supple-mentaly pit of 400 m3 was constructed nearby. But this pit also became full within one day, so that a third pit was constructed by welding steel panels. Three more similar pit were in the Kanazawa area, Tsuruga and Suzu. Fas tanks, oil drums and big sand bags were utilized for the temporary storage of recovered oil.

EXTRACTION OF REMAINING OIL FROM BOW SECTION

It was estimated that about 2,800 kl of oil remained inside the bow section which drifted across the Sea of Japan and beached on the shore of Mikuni Town, and also it was anticipated that this remaining oil would spill out because the bow section might collapse further. So extraction of this oil became an urgent priority. But the sea conditions had been quite bad and the extraction operation was readily seen to be both demanding and time comsuming. It was in these circumstances that the insurance company initiated survey works and invited tenders, but this response was so lax that the Japanese Government decided to take forcible, compulsoly measures and ordered MDPC to execute the task.

From the offshore side, two salvage companies joined forces and when the sea condition was calm started the task of opening the deck hatch on the under side of NAKHODKA, which was upside down. The first extraction work was done on 16th and 17th January, the second on 5th and 6th February, and the last on 8th, 9th and 10th February. This work was only done in good weather conditions and was completed by using steam to soften the high viscosity fuel oil in cargo tanks.

On the shore side, a temporary jetty road was constructed to reach the bow section from the shore in order to carry out the extraction work no matter what the weather was. When planned it was expected to be constructed within a week, but soil and sand were washed out and eroded by high waves, so it took 26 days from 15th January until 9th February. This constructionwork was done by a joint venture of seven companies from the Japanese Dredging and Reclamation Engineering Association. When this jetty road was completed, the suction work was already in almost the last stage. Therefore only 381 kl oil was removed from the bow section from the shore side. Insted of being a benefit, the removal of this jetty road became an additional burden to MDPC.

DISPERSANT

On 9th January we collected the oil from surface of the sea around the grounded bow section, and tested the efficiency of three types of dispersant for the collected oil under the condition of air temperature at 8 ℃, water temperature at 4 ℃. However, the oil could not be dispersed, we decided not to use the dispersant.

CONCLUSION

There had been about 300 to 400 oil spills in every year in Japan, but almost all of them were quite small, and even the largest in the last five years was a spill of 570 kl heavy grade C fuel oil by a domestic tanker. No large scale oil spill had occured. However MDPC had accumulated experience through the clean up operations on about 120 disaters in the past twenty years and had studied large scale oil spills in foreign countries, so MDPC was able to make use of its knowledge of these previous incidents.

There remain many matters to be discussed concerning the whole spectrum of recovered oil, transportation to the final treatment facilities, legal problems, handling procedures on site and the order in which things should be done, claims for the cost of the operations, settlement of Government charges for future provision, and so forth.

FASTANK
15:43

FASTANK

油膜
流動性

10cm×12 900m³

1/2 [illegible]

150×60m

AN OVERVIEW OF THE CURRENT INDUSTRY OIL SPILL RESPONSE CAPABILITY IN THE NORTH CASPIAN REGION.

A PAPER PRESENTED BY ERIC F. BRANDIE,
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TENGIZCHEVROIL. {ON BEHALF OF MEMBERS OF THE KAZAKHSTAN PETROLEUM ASSOCIATION, HEALTH SAFETY & ENVIRONMENT COMMITTEE.}

DELIVERED AT THE OIL SPILL AND EMERGENCY PREVENTION, PREPAREDNESS AND RESPONSE WORKSHOP,
DECEMBER 10th-12th. 1998
HYATT REGENCY HOTEL, ALMATY.
REPUBLIC OF KAZAKHSTAN.

INTRODUCTION.

The Caspian, - an extraordinarily fascinating location, steeped in history and folklore, rich in natural resources complemented by a wealth of varying cultures, subject to extreme and diverse climatic conditions, a natural habitat for a wide variety of marine species, wildlife and mammels, and a region undergoing metamorphosis, historic in nature, broad in scope and profound in terms of an emerging regional identity.

This is a rich and dynamic region in it's own right with each of the Caspian countries providing important links in Eurasian transportation corridors collectively now referred to as the new Silk Road and with a collective endeavor to join the global economic community.

Just as the original and somewhat mystical Silk Road arteries fostered not only commerce and trade between East and West, but also people, their customs and ideals, back around 100 B.C., so the new Eurasian corridors will not only facilitate trade in petroleum products, but will also be vehicles for communications, co-operation, and more broad – based transactions.

Historically, the region has been no stranger to conflict and divisiveness which in some respects has left a mark to this day. Additionally, the region has also seen petroleum product extraction in the past and these operations have also left some degree of legacy.

In the Azerbaijan sector, which witnessed the last oil boom at the turn of the century and which was predominantly a power play primarily between the British and Russian Empires, scant regard was paid to responsible management of such mineral extraction operations and even less respect given to protection of the local environment.

The Caspian, particularly in the vicinity of Baku still bears the scars of such irresponsible mode of operations. That previous "black gold rush" was probably appropriately named the Great Game.

In more modern times fortunately, technology has progressed immensely, responsible management for petroleum product extraction is continuously stressed, mechanical integrity of plant and equipment has been improved greatly, focus is placed on health and safety of personnel and protection of the environment is of paramount importance, and the emphasis is on co-operation and mutual benefit.

The previous and totally irresponsible "great game" philosophy has been relegated to the darker side of history and the modern approach to mineral extraction and processing of product will potentially lead to "great gain" via the shared wealth and prosperity that such development can bring about when co-operation, responsible attitudes and behaviors, coupled with ethical business practices supersede political rivalry, avarice and irresponsibility.

This theme of togetherness, co-operation and mutual assistance in particular will feature prominently within context of this overview of the Industry approach to oil spill prevention, preparedness and response by companies engaged in both the search for, and subsequent extraction and transportation of product from proven reserves in the north Caspian region.

THE AGE OLD ADAGE OF PREVENTION BEING BETTER THAN CURE REIGNS SUPREME WITH RESPECT TO OIL SPILLS.....CURRENTLY THE RECORD IS IMPRESSIVE.

The title of this particular Workshop contains the three terms **Prevention; Preparedness; and Response**. Initially I wish to focus on the critical aspect of spill and emergency **prevention.**

Ask any Company Executive, On Scene Incident Commander, Government Official, or Spill Team Member involved with managing a major spill and their response to the question as to their thoughts on the situation will be exactly the same, that is... their greatest wish would be that more emphasis had been placed on prevention to avoid the emergency in the first instance.

The risk and subsequent consequences associated with major spills tend almost inevitably to be viewed in a somewhat emotive fashion. When major spills do threaten, then it is not just the environment which is placed in jeopardy, but also the reputation of the parties involved which are at stake.

On a global scale, there is rapidly growing public awareness and concern for the environment and major spills are certain to attract media attention and feature prominently on worldwide news agendas.

Awareness of such pressures, potential mass media coverage and associated threat, both Industry and Host Governments can tend to be mutually drawn towards ill conceived, potentially overkill, immediate solution – based approaches entailing excessive expenditure, and misplaced areas of responsibility and associated potential liability.

The more favored and scientifically sound approach is to adequately assess the actual risk and put adequate controls, practices and procedures in place to manage that risk. In Quality terms....define the problem (and every problem presents an opportunity); assess, review and evaluate measures to counteract the problem; implement agreed measures and further evaluate; execute training and test procedures designed to keep the problem under control; post assessment and seeking continuous improvement.

A major focus must be placed on pollution prevention measures by all interested parties, Operating Companies; Government Agencies; Contractors; Vendors and Suppliers; Shippers; Pipeline Operators and Specialists/Consultants.....once preventative measures have failed then crises management and associated damage limitation is the order of the day.

Tengizchevroil as the largest shipper of crude from the north Caspian region routinely exports some 72,000 barrels of oil a day through Russian pipe-lines and on average an additional 87,000 barrels a day were transported by rail in 1997. This roughly equates to almost 59 million barrels of crude being exported annually. During 1997,a total 100 tonnes of crude (the equivalent of two standard rail cars or 800 barrels) were spilled to land , and this year to date, 50 tonnes of product have been spilled on land. Over a two year period, 150 tonnes (1200 barrels) , although 150 tonnes too many, represents an absolutely infinitesimal percentage of 118 million barrels of transported product.

Attention to safe working practices and operating procedures, ensuring mechanical integrity of equipment by regular inspection and maintenance scheduling routines, regular training and emphasis on safe operations and protection of the environment have been the key drivers to bring about this level of performance.

A variety of export routes have been utilised by TCO. with oil being moved overland, across the Caspian Sea, up the Volga-Don Canal, through the Baltic, Black and Mediterranean seas . Crude has been shipped to Azerbaijan, Georgia, the Ukraine, Finland and Estonia.

As we look forward to achieving increased production from the Tengiz Field (the objective is to be running at more than 700,000 barrels a day by the year 2010), coupled with the anticipated availability of the new CPC pipe-line route to Novorossiysk by 2002, shipment of our crude by rail and barge will be minimised and the associated risk of spillage reduced by use of this new, high integrity pipe-line export system.

This impressive record will be maintained by constant vigilance, continued emphasis on safe operations and inspection and quality control procedures to ensure mechanical integrity of transportation equipment and systems...the proactive, preventative approach to safe operations and protection of the environment.

BE PREPARED HOWEVER!

Despite best efforts to prevent spills there inevitably remains a residual risk for spillage to occur. In order to be prepared to efficiently manage such an occurrence and have emergency procedures, resources, equipment defined for responding to such an event, detailed scenario planning and associated environmental sensitivity studies must take place.

Initially, the risk of frequency of a spill occurring and the most likely high risk and sensitive areas for such a spill should be assessed, then the potential magnitude of such a spill and associated consequences and influencing factors must be considered. Contingency planning involves environmental sensitivity mapping, impact assessment studies, review of potentially vulnerable locations and operations, but should also include detailed environmental behaviour studying of the actual product involved. This particular type of information is sometimes overlooked but is of paramount importance for contingency planning and for determining appropriate response actions in the event of a spill.

Such environmental behaviour studies have for example been conducted on Tengiz crude and these investigations have shown that some 37% by weight of any spilled oil can be expected to be rapidly lost from the sea surface by evaporation, while approximately 58% by weight will eventually be lost.

This study which was incidentally sponsored by OKIOC. in collaboration with TCO. and conducted by AEA Technology plc. also demonstrated that emulsification processes may result in a doubling of the quantity of the material on the sea surface, especially during rougher sea conditions. Some natural dispersion can also be expected, reaching over 50% of the spilled oil within 100 hours in very rough conditions.

This type of product behavioural related data is extremely valuable for pre-planning purposes and can be used in conjunction with many other planning tools, including spill predictive models and tracking programs which are also available.

This analytical, predictive and proactive approach, when coupled with input from associated sensitivity mapping and impact assessment, allows for a more meaningful approach to taking decisions as to the type of response capability needed for a particular type of spill. Without this type of considered approach, it is only too easy to subsequently arrive at ill defined response plans and resources.

The particular reference to the environmental behavior studies undertaken on Tengiz crude is a clear example of the co-operation and mutual assistance theme mentioned previously in the paper. The other caveat exercised here is that it is only too easy to move straight to proposed solution modes for oil spill response planning without having adequately assessed the level of the potential problem involved....environmental risk assessment consideration is the correct approach to adopt.

RESPONSE STRATEGY.

Oil spill response is normally classified into three levels;

Tier 1.- Equipment provided for the exclusive use of the Operating Company and available onsite to respond to small localized incidents. Typically, equipment available to respond to a limited discharge from loading operations or a slow leaking crude rail car and which can be fairly readily contained / recovered.

Tier 2.- A larger stockpile of equipment positioned within an area or region and capable of dealing with medium sized spills. Current Tengizchevroil crude transportation operations are assessed to potentially involve a maximum most probable discharge in the range of 125 tonnes. This type of incident would fall within this Tier 2 Response category. Normally Tier 2 equipment is part of a shared facility or co-operative arrangement and is thus available to other Operating Companies in the area. A typical and current example of a Tier 2. Stockpile arrangement would be the BMES. Warehouse and associated Emergency Command Center at Baku.

Tier 3.- Equipment capable of being transported on a global basis to respond to major incidents where the scale and scope of requirements is beyond the capabilities of the Tier 2. response. A complete loss of a tanker on the open seas would be classed as a Tier 3. Incident. Oil Spill Response Limited located in Southampton, England are a Tier 3. Response provider. The majority of co – venture Companies currently operating in the Caspian Region are affiliated via parent Organizations to full membership of OSRL. and therefore eligible to call them out in a major emergency.

At this point, I would wish to return to the important theme of co-operation and mutual support. In Kazakhstan, those companies with operations which could impact the Caspian or surrounding areas have struck up a formal Mutual Aid Agreement whereby all existing individual Company - held spill response equipment and trained resources can be made

available upon request to any participant requiring same to deal with a spill within their particular sphere of operations.

The existing Tier 1.and 2. equipment held individually by the KPA. Member companies is significant and when combined as necessary, will adequately cater for all potential Tier 1. or 2. Type incidents.

These mutual aid equipment stockpiles are currently arranged to be located from the North East region of the Caspian, at Bautino Base and offshore (OKIOC.); through the Tengiz area (TCO); in the vicinity of the Arman Field at Kalamkaas (Oryx); at the port of Aktau in Kazakhstan, at the port of Dubendi in Azerbaijan , and also Batumi and mid way along the railine export route in the vicinity of Tbilisi, Georgia.(TCO.) The range and general types of equipment held at these locations is typified by the specific Inventory List available as an Attachment to this Paper. These Company specific equipment packages held onsite are supplemented by the Tier 2. Equipment available for call up from the BMES. Stockpiles held at Baku.

As stated this currently established Mutual Aid Agreement lends itself well for response to Tier 1. and Tier2. spills and it is the fervent hope that this existing arrangement could be extended to augment other equipment currently available in other regions of the Caspian and thus encompass a Caspian wide "mutual assistance/club sharing" arrangement, similar to arrangements previously established in other oil producing regions such as the U.K. North Sea.

When it comes to major oil spills, all interested parties are involved or impacted to some degree....mutual assistance and togetherness in containing and dealing with such incidents is the key to adequate control and management of the situation.

CONCLUDING COMMENTS.

One of the main themes running through this Paper has been that of co-operation between all interested parties with respect to Oil Spill Prevention, Preparedness and Response. When it comes to oil spills "everyone is in the same boat". At each phase of the process, through Prevention; Preparedness; and Response, host Government Agency representatives, Operating Companies, Consultants, Contractors and Service Providers have an important role to play.

Certainly the Operating Company must take prime responsibility for maintaining safe operations, spill prevention, adequate preparedness and response capability.

Government Agency representatives should monitor for compliance with legislative requirements and by the process of facility inspection, review and expertising of Company emergency response planning arrangements , checking of oil spill response

equipment, witnessing of emergency training and oil spill response drills and exercises, and the undertaking of a legally approved surveillance and monitoring role during actual spill response operations, assure the host Government that adequate arrangements are in place and are being maintained in a state of readiness for response.

Oil Companies currently operating in the Caspian Region have well established procedures such as Incident Command Systems and adequate back up and support mechanisms provided by fully trained resources from parent companies .(Chevron Corporation for example maintains Company Wide Resource Teams, comprising Advisory and Resource Teams; a Worldwide Response Team; Supporting Functional Teams: and a Mutual Aid Manpower Pool. All of these Company Employees undertake regular training and exercising under the Incident Command System strategy and are available to Chevron Companies and Affiliates worldwide.) In addition and via contractual agreements with specialist service center providers such as BMES.; OSCA.; OSRL.; EARL.; and other contracted Consultancy / Specialist entities, additional external expertise and resources can be called to assist with major spill incidents.

The Company role is to ensure that these arrangements are continuously available and that the response arrangements are adequately tested. The main focus should however remain on proactive, preventative measures throughout Company operations.

TCO. on behalf of Kazakhstan Petroleum Association's Health safety and Environment Sub Committee Members appreciates the efforts that have been made by the various supporting organizations in bringing about this important Workshop and for the Republic of Kazakhstan hosting this event.

Prevention of oil spills and assurance of the availability of a range of adequate measures to deal with spills should they occur is critical to the continued success and development of mineral resources throughout the whole Caspian region. Workshops and Seminars such as this allow for exchanges of experience, dialogue between all interested parties, an increase in level of understanding of various services available for spill management and response purposes, and the opportunity for continuous improvements to be made with respect to protection of the Caspian region environment.

I look forward to participation and discussion with attendees during the Workshop Break out sessions. Thank You for your attention.

E.F.Brandie.
TCO.Safety & Environmental Affairs Manager.
December, 1998.

TCO Oil Spill Response Capabilities
Tengiz Export Corridor
Aktau-Dubendi-Baku

- 5 meter aluminum boat equipped with 20hp motor
- used to deploy booms in the water if tanker leaks during loading or unloading operations while in port

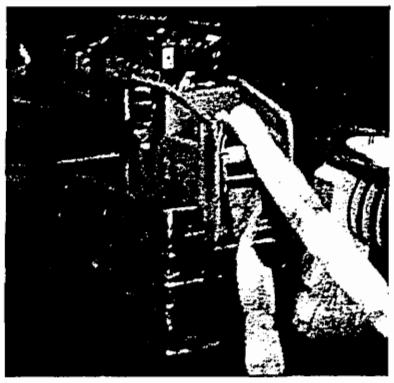
TCO Oil Spill Response Capabilities
Tengiz Export Corridor
Aktau-Dubendi-Batumi

- Temporary 2000-gallon storage tanks to collect oil from skimmers
- TCO will utilize 2 tanks to allow a settling and drain system to be employed

TCO Oil Spill Response Capabilities
Tengiz Export Corridor
Aktau-Dubendi-Batumi

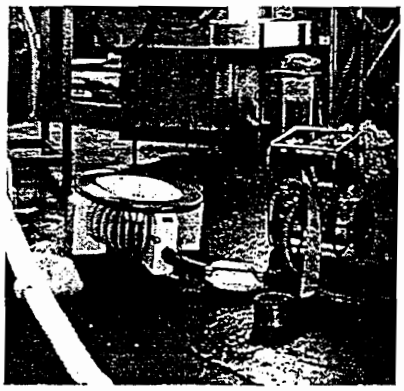
- Rope mop skimmer to be used to recover oil from the surface of the water

TCO Oil Spill Response Capabilities
Tengiz Export Corridor
Aktau-Dubendi-Batumi



- Rope mop skimmer

TCO Oil Spill Response Capabilities
Tengiz Export Corridor
Aktau-Dubendi-Batumi

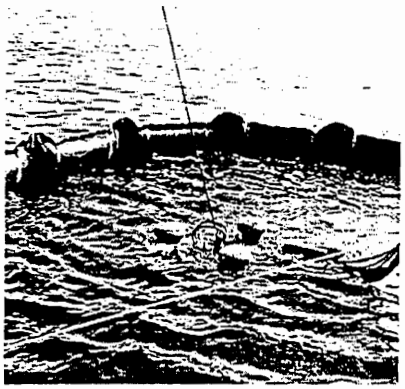


- Disc skimmer to recover oil from the water.

TCO Oil Spill Response Capabilities
Tengiz Export Corridor
Aktau-Dubendi-Batumi

- Sorbent pads, booms and rolls that are used to recover oil from either the surface of the water of from rocks, beach, or solid surfaces

TCO Oil Spill Response Capabilities
Tengiz Export Corridor
Aktau-Dubendi-Batumi



- Skimmer in the water surrounded by boom

Summary of Port Equipment Package

Annex B

Number	Description	Number of
Boat		
a.	Aluminum (or GRP) Skiff	1
a.1	Outboard Engine 20 HP c/w spares	1
a.2	Portable Fuel tanks c/w hoses & primer	2
a.3	Paddles	2
a.4	Bailer	1
Boom		
b.	300–450 meters inflation boom Sentinal 400 25meters	19
b.1	Air inflation blowers c/w spares	2
b.2	Fuel Tank	2
b.3	Weights	4
b.4	Buoys	4
b.5	Towing Bridles 1 pair	1
b.6	Magnet Holders 1 pair	1
b.7	Tricon Connectors	2
Skimmer		
c.	Komara 12 c/w spares	1
c.1	Spate Pump 3" diesel, 20m discharge layflat, 20m suction camlock fittings	1
c.2	Delta Head	1
c.3	Rope Mop	1
Storage		
d.	Portable Storage Tanks	2
d.1	Accessory Kit to Include 2 liners, ground mat, hose saddle, spares & box	2
d.2	Containers 20ft.	2

Sorbents		
e.	2000 ft. M50 Booms (10ft x 8" X 4)	50
e.1	M75 pads (18"x18"x3/8x100pads)	25
e.2	M95 rolls (20ft.x36"x6 sections)	6
e.3	Sweeps	10
e.4	Plug Rug 8R	1
e.5	Plug Rug 24R	1
PPE	(Personal Protection Equipment)	
f.	Bag PPE complete	6
f.1	Tyvek Paper Disposable Suits	25
f.2	2 piece-waterproof suits	20
f.3	Gloves	120
f.4	Vapor masks	6
f.5	Goggles	6
f.6	Shovels	6
f.7	Rakes	6
f.8	Plastic bags & ties	100
f.9	Rolls plastic tubing 50m x 1m x 25 mm	3
f.10	Torches c/w batteries	6
f.11	First Aid Kit including eye wash station	1
f.12	H2s Alarm Kit	1
f.13	Toolkit	1
f.14	Waders	2
f.15	Life vests	4
f.16	Stakes 1.5m	4
f.19	Stake Hammer	2

Summary of Mobil Equipment Package

Annex C

Boom		
g.	450meteres inflation boom Sentinal 400	1
g.1	Air inflation boom c/w spares	2
g.2	Fuel tank	2
g.3	Tricon connectors	2
Skimmer		
h.	DESMI termite c/w 100m 3" discharge layflat, 2yrs. Spares	1
h.1	Sprate Pump 3" diesel, 20m discharge layflat, 20m suction Camlock fittings, 2 yrs. Spares	1
h.2	Delta Head, c/w 30m suction hose	1
h.3	Rope Mop, 2yrs. Spares, spare mop	1
h.4	Fuel tank 20 liter	2
h.5	Power pack for Termite	1
Storeage		
i.	Portable Storage Tanks 2000 gallons	2
i.1	Accessory kit to include 2 liners, ground mat, hose saddle, spares & box	2
i.2	Containers 20ft.	2
i.3	Roll-over containment tank	1
Sorbents		
j.	2000ft. M50 Booms (10ft x 8" x 4)	50
j.1	M75 pads (18" x 18 " x 3/8" X 100 pads)	25

j.2	M95 rolls (20ft x 36" x 6 Sections)	6
j.3	Sweeps	10
j.4	Plug Rug 8R	1
j.5	Plug Rug 24R	1
j.6	Particulate m-100	10
j.7	Industrial Rug	1
PPE	(Personal Protective Equipment)	
k.	Bags PPE complete	6
k.1	Tyvek paper disposable suits	25
k.2	2 piece water proof suits	20
k.3	Gloves	120
k.4	Vapor masks	6
k.5	Goggles	6
k.6	Shovels	6
k.7	Rakes	6
k.8	Plastic Bags & Ties	100
k.9	Rolls of Plastic Tubing 50m x 1m x 25m	3
k.10	Torches c/w batteries	6
k.11	First aid kit including eye wash station	1
k.12	H2S Alarm Kit	1
k.13	Toolkit	1
k.14	Waders	2
k.15	Sandbags	100
k.16	Stakes 1.5m	10
k.19	Stake Hammer	2
k.20	Safety harness 9 body type)	2

IV. Environmental Sensitivities and Oil Industry Approach to Response

WORKSHOP ON PROBLEMS OF OIL SPILLING PREVENTIVE MEASURES,

THE PREVENTION OF EMERGENCY OCCURRENCE,

PREPAREDNESS TO THEM AND RESPOND METHODS

December 10-12 1998

HYATT REGENCY - RAHAT PALACE HOTEL, ALMATY, KAZAKHSTAN

PROBLEMS OF HYDROMETEOROLOGICAL MONITORING AND ENVIRONMENT POLLUTION OF THE KAZAKHSTAN PART OF THE CASPIAN SEA

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"Hoary Kaspiy ", - that's the name people respectfully call the Caspian sea. During a centuries-old humanity history it showed the people its unpredictable character many times. The Caspian Sea level rise, observed since 1979, occurred basically because of the substantial growth of precipitation and surface drain into the sea, and also evaporation decrease from its surface, caused significant socio-economic problems for Caspian Sea states, including Kazakhstan. Therefore the comprehensive study of hydrometeorological regime of the Caspian Sea and bordering territory is of great importance

By the present time there has been a temporary stabilization of the Caspian sea background level on a high mark, exceeding average sea level value on 2 m, with small fluctuations, during last three years within 36 sm. Despite this, the situation at the Kazakhstan coast remains rather difficult, especially in Atyrau oblast, where at strong storm surges under the smallest inclination of the territory bordering to the sea, an area of 15-30 km is flooded.

The extent of the Kazakhstan coastal line at its present mark is 1600 km. With the sea level rise up to a mark of 25.0 m, the coast length increases up to 2400-2700 km. At that the flooding line will occupy 1-3 km along the Mangyshlak peninsula coastal zone; up to 25 – 30 km on north-east coast; coastal zones of nine administrative regions of Atyrau and Mangystau oblasts will be flooded.

The total flooded area at a sea level of 26.0 m amounts 1,2 mln ha; at a level of 25,0 m – up to 2,2 mln ha of territory.

Built up, populated territories and areas occupied for industrial objects, reach from 4 to 6 % of total flooded coastal area; agricultural lands reach 25 % (0,57 mln ha).

The population getting into a flooded and storm surges zone amounts 300,0 thousands people (Atyrau oblast 265,0 thousands people-58,3 %, Mangystau-35,0 thousands people-10 % of the populated areas).

Zone of the sea influence includes large industrial-territorial complexes: Atyrausky, Tengyzsky, Bazuchynsky, Aktausky, with the cities Atyrau, Fort Shevchenko, Aktau and Bashykshy village, where the most part of the industrial enterprises of region are placed. Largest ones are Mangystau nuclear power complex, oil refinery, chemical factory, dock, Atyrau thermal power plant, house-building, meat and fish canneries. More than 30 oil fields and oil and gas deposits including Tengyzskoe, Kalamkas, Karazhanbas, are under the threat of predicted flooding. Up to 10 objects of fish industry (fish-factories, etc.), irrigation channels with the total length of more than 1000 km, more than 1500 hydrostructures and pump stations, more than 700 km, of highways with a hard surface, railway with total length up to 300 km, Atyrau airport, seaports in Atyrau and Bautino got into the sea impact zone.

Also flooded zone includes the hydrometeorological stations Fort Shevchenko, Kulaly, Peshnoy Island.

The Kazakhstan coast of the Caspian sea, where now oil and gas industry is liven up, is remarkable for the significant number of the spontaneous hydrometeorological phenomena. They include:

- Extremely high sea level rises under storm surges, and rises at river mouth-under ice jams, hanging dam and high waters, and extremely low sea level falls under wind phenomena
- Extremely strong sea roughness – large washes, surf, churning;
- Pressure of sea ice on ports and other hydrotechnical structures at the coastal zone of the sea;
- Appearance of sea ice in the regions, where they are usually absent;
- Extremely early formation or appearance of ice;
- Sudden formation of thin ice crust (resun) in Northern part of the Caspian Sea;
- Icing of berths, piers and other sea hydrotechnical structures;
- Strong winds over the sea;
- Flowing of the sea, salty water far into a mouth of the rivers;
- Extremely strong coastal currents and ice drift;

- Lehr-current, causing periodic movement of ships at berths up to 2 – 4 m;
- Sudden fluctuations of water temperature at coast;
- Increase of the polluting substances contents;
- Strong decrease of the oxygen contents in the water;
- Large accumulation of seaweed.

All this requires to take firm measures on organization of up-to-date system of monitoring of environment basic elements.

At the same time the available hydrometeorological network, its equipment, scope and the kinds of observation do not meet those tasks, which are entrusted to hydrometeorological service of the Caspian Sea region countries to solve problems connected with the Caspian Sea level rise.

The sea observations in the Kazakhstan part of the sea were begun in 1921 at station Fort Shevchenko, since 1929 - at station Peshnoy Island, since 1936 - at station Kulaly Island and since 1961 – at the station Aktau.

Till 1992 the following network of hydrometeorological stations and posts operated in Kazhydromet system. It consisted of:

- Sea hydrometeorological stations (Aktau);
- Three meteorological stations (Atyrau, Ganyushkino, Peshnoy Island);
- Six hydroposts on the rivers Ural, Emba, Volga;
- One aerological station (Atyrau).

The environment pollution observations were carried out at:

- six points on atmospheric air pollution observation in Atyrau, Aktau cities and Kurmangazy village;
- six river observation points on the rivers Ural and Volga, and at 12 stations in the northeast part of the Caspian sea, including two points in the sea navigable channel.

In 1992 sea hydrometeorological station (SH-1) Fort Shevchenko was got from Azhydromet, SH-2 Kulaly Island – from Roshydromet, hydroposts Volga R.-Kigach strait-Kotyaevka village and Moscow hunting base with the former observation scope. Also the former order of an information exchange remained. The departments of Roshydromet and Azhydromet should carry out the observations on century sections in the Kazakhstan part of the sea in former scope, as Kazhydromet had no the specialized vessel.

In Atyrau city the Pricaspian specialized research-and-production centre was organized the, which task included of the works program on study of environment pollution nature in Pricaspian region, and also implementation of works on the contracts with the enterprises and organizations operating in Pricaspian region.

In comparison with middle 80s the hydrometeorological network of stationary points has decreased, in 1994 the observations on the water drain of the Emba river were stopped (hydropost in Zhanbike village was closed).

Since 1993 the tendency to reduction of observation kinds and scopes was outlined:

- At SH-1 Fort Shevchenko actinometric observations and observations of sea level through automatic recorder were stopped;

- At SH-2 Kulaly the observations on evaporation from a water surface through evaporator GGI-3000 were stopped;

- In 1994-95 the measurements of the water charges in the bottom current of Emba R. were completely stopped.

The carried out testing of hydrometric devices condition on hydroposts of Ural R., and also at sea stations Aktau, Kulaly, Fort Shevchenko, has shown the necessity of urgent specification of bench-marks, as many of them are situated in a flooded zone.

Automatic tide gauges work on SH Aktau. Gauges on SH Aktau and the Fort Shevchenko are in good condition, but at other sea and river posts piles require regular repair and are unreliable, that is why there were cases of the observations (SH Kulaly).

Because of impossibility to apply methods of mouth hydrology in calculation of drain on hydroposts of the Ural river and the poor qualities (sea rotators and automatic level recorders are absent, and this is inadmissible under tide phenomena), causes doubt of inflow reliability into the Caspian sea.

The special attention should be paid to the problem of stations and posts network reequipping by reliable, modern means of measurement. It's not a secret, that the works quality reduction to a great extent was promoted by weak technical base for the observations, systems of information collection and processing. And the coordinated, uniform technical policy of national hydrometeorological services in all the Caspian Sea countries is necessary.

Observed sea level rise and the related socio-economic problems of the Caspian sea coast zone result in necessity of coordination and association of the Caspian Sea countries efforts in the field of hydrometeorology and monitoring of the Caspian sea and its basin environment, and cooperation with the international organizations.

In 1995-1996 Kazhydromet took part in development of the project IAEA RAW-8-004 "Methods of study of the Caspian sea level fluctuations". Within the framework of the project in August, 1995 and September, 1996 the research workshops-cruises on the Caspian sea were held with the participation of the experts from Kazhydromet.

The representatives of IAEA, Kazakhstan, Russian Federation, Azerbaijan, Turkmenistan, Iran, the USA, France, Switzerland and Monaco participated in

workshops. Program of workshops included both lectures and reports on methods and results of study of the sea level fluctuations, Caspian sea water pollution, on a present condition and the forecast of impact on the ecological condition of environment. The ways to use of last science achievement, including isotope hydrology, in identifying of duration and extent of the Caspian sea water rise and pollution and their reasons were also discussed.

During the workshops practical hydrological and oceanographic works at 13 points-stations of the Caspian sea (from Iran to the Kazakhstan coast) were carried out: definition of sea depth, salinity, water temperatures, selection of sea water tests from various depths for the chemical, biological and radioactive (isotope) analysis.

Basing on the results of IAEA studies in 1997 the Report was issued and the meeting of the countries-members representatives was held in 1998 in Vienna (Austria). Unfortunately the experts-hydrologists of our service could not take part in this meeting because of a difficult financial and economic situation in Kazhydromet. However the started business cooperation with IAEA continues.

Under the World Meteorological organization aegis five Caspian Sea countries' hydrometeorological services developed "The Regional complex program on hydrometeorology and monitoring of environment in the Caspian sea region" (KASPAS) in 1997.

In KASPAS framework 12 project proposals on the priority tasks solution were developed and coordinated:

1. Restoration of basic and coastal stations and kinds of observations and creation, if necessary, new coastal and buoy stations.

2. Restoration and development of the complex monitoring system of the Caspian sea and rivers mouths pollution.

3. Development of methods for polluting substances balance in the Caspian sea basin in order to estimate and forecast the ecological consequences of the Caspian sea pollution and its level change.

4. Creation of the problem-oriented databanks on the base of up-to-date technologies (meteorological, oceanographical, hydrological etc.), data on environment condition in the Caspian region in five Caspian Sea countries, and also automated information system for support of economic activity and nature protection measures.

5. Development of a regional technique and systems of the satellite information decoding, and also specialized provision.

6. Development of the proposals on information system creation of complex monitoring, including the Caspian system of hydrometeorological observations and national databanks of all the Caspian region countries, including with probable use of geoinformation systems (GIS) elements, together with the data on meteorology, space, oceanology, air quality, river drain and waters quality.

7. Development of the standard-inquiry manuals on hydrometeorological regime and condition of pollution on the Caspian sea to develop the methods for the coastal zone and sea ecosystems protection from anthropogenous impact.

8. The improvement of methods for the estimation and complex analysis of the Caspian sea water balance elements, especially the inflow-forming factors in the basin.

9. Development of methods for the estimation and forecast of the dangerous natural phenomena, such as wind surges, extreme high waters, current, ice drift etc., resulting in emergencies and ecological disasters on water area and coastal zone of the Caspian Sea.

10. Complex study of long-term changes in water balance of the Caspian sea and sea level fluctuations aimed at the development and application of the long-term forecasts with the lead time from 2 to 10-20 years necessary for the planning and designing purposes.

11. Complex field and experimental studies in the major rivers deltas.

12. Realization of measures in the field of education, training of personnel and share of experience within the framework of KASPAS subjects.

According to the KASPAS project, the created system of information service in the field of hydrometeorology and monitoring of the Caspian sea pollution will supply the reliable and accessible information to:

- Bodies of management at the various levels;
- The population of coastal areas (about 10 million people);
- National and local planning organizations, developing strategy of and social sphere economy functioning under the sea level fluctuations;
- Oil and gas refinery branch;
- Fish industry;
- Agriculture, including irrigated;
- Cattle-breeding;
- Ground and sea transport, power;
- Tourism;
- Organizations on coast protection against the sea level fluctuations of and pollution;
- Nature protection organizations.

According to KASPAS, the main tasks of Kazhydromet are: creation of complex observation system on the hydrometeorological parameters and pollution environment in the Caspian sea basin in order to get the initial data for a regular and

objective estimation of the region environmental condition, conducting the scientific researches related to the water balance estimation, forecasts of the level and other regime elements, estimation of natural and anthropogenous factors impact on the Caspian sea ecosystem.

The main directions of Kazhydromet activity till 2000 are:

- Studies of raised sea level impact on a hydrometeorological regime of the Caspian Sea;

- Water balance studies;

- Estimation of the possible sea level condition for the perspective and development of system for the sea hydrometeorological regime forecasts with various lead time;

- Study of dynamics of water pollution caused by hydrometeorological factors;

- Implementation of complex field researches on the Caspian waters, in the coastal zone, in the river mouths to obtain the additional information;

- Technical reequipment of the observation network, systems of the collection, processing and keeping of observation data;

- Participation in development of interstate system of complex monitoring of the Caspian Sea;

- Participation in development and implementation of research works.

We consider it is also necessary to develop work together with the interested departments according to Kazakhstan's development priority, such as:

- Development of methods for simulation of storm surges events, evaluation of flooding territories of the Kazakhstan's Caspian Sea coast;

- Development of a method for calculation of hydrological characteristics of the tributaries Kigach, Sharonovka of the Volga river, rivers Ural and Emba and temporary flows in Atyrau and Mangistau oblasts for coast protection designing;

- Study of pollution level of the northeast part of the sea;

- Organization and scientific substantiation of monitoring of hydrologycal and morphological processes at mouthes of Volga, Ural, Emba rivers.

Taking into account the priorities, the following measures on realization of Kazgydromet program for the period until the year 2000 are planned:

- The restoration of the stations and posts network (in former volume of observation), which information is used for drawing up of all basic hydrometeorological forecasts and warnings.

- Hardware of restored stations and posts, kinds of observation by tools of observation;

- Organization of departmental system of communication on the stations and posts network;

- reconnaissance survey with the purpose of definition of new observation sites, development of the scientific requirements to spatial location of observation sites;

- Formation of "scientific and field investigations and works portfolio" for fulfillment of complex hydrometeorological monitoring.

Some measures are already have implemented, in particular reconnaissance survey are carried out on Mangistau coast to establish new observation sites, two oblast's Hydrometeorological Centers (in Aktau and Atyrau cities) are equipped by computer fax - modem communication, automatic hydrometeorological station is established and operates on Peshnoi island.

We plan to establish additional observation sites:

On aerology -

To open station of sounding of the atmosphere Actau to obtain the information about the atmospheric conditions up to tropopause to use it for improvement the weather forecasting.

On sea hydrometeorological observation at the water area (currently are not conducted) -

Under the standard program on the following century slits: I, II, A, B, IY, Y, YI, YII, YIII.

As a priority we consider organization of the following three automatic sea stations on piles:

- station at northern coast (on Novinski islands or on Saburunie);

- station on Zuidveistovaia Shalyga island;

- station at southern coast on Burunshik .

It is also necessary to organize stationary station of M-2 type at the east coast and station MG-2 at Kuryk village, as well as to establish three automatic stations along east coast and on water area (3 on water area and 3 coastal) to observe storm surges.

Is planned to carry out observation over a sea lével, ice phenomena, water temperature, waters quality and precipitation, temperature and humidity of air, direction and speed of a wind, evaporation, deposits, direction and speed of sea currents.

On a river hydrology -

To estimate annual amount of river runoff from the Kazakhstan coast into the Caspian sea and intensive rise of water level on mouth areas of the rivers it is necessary to introduce additional type of observation:

- Measurement of water charges on water-level measuring posts at channels Kigach and Sharonovka of the Volga river.

- To establish hydrological observation site in mouth of the Emba river (instead of closed one in Zhambike village);

To install a water level recorder at hydrological observation sites of Atyrau city and farm named after Zhambyl.

on observation for environmental pollution -

To study of pollution level of the Kazakhstan Caspian Sea, and also to reveal pollution zones of the sea because of insufficiently investigated problem it is being proposed:

- to continue observations in the sea navigable channel, on the Ural river beach, in the Tengiz deposit region;
- to organize observations at additional stations in the northern part of the sea;
- to renew observations on ancient sections of the east coast of the Middle Caspian:
- - peninsula Mangyshlac - 3 stations;
- - cape Sagyndyc - 3 of station;
- - cape Kenderly - 3 of station;
- - cape Peschanyi - 3 stations;
- to organize observations at east coast of the Kazakhstan Caspian sea:

  - an area of Bautino village - 5-6 stations;

  - an area of Aktau city- 5-6 stations.
- to curry out observations under the program of the category III on ancient sections, on beach - 4 times per year on physical, chemical and hydrobiological parameters.
- to carry out a choice of samples of bottom sediments in the Northern and Middle Caspian (12 - 15 stations) for a definition of petroleum products, fenols, pests etc.
- - to organize observations for both solinity and water pollution of the sea and atmospheric precipitation at both island stations and platforms and two stationary meteostations.

For performance of works for pollution monitoring of the Caspian waters it is necessary:

- to open a special sea laboratory in Atyrau city;
- to use the satellite information for an estimation of a pollution level of sea waters and distribution of pollution zones by oil;

- to establish automatic stations for quality control at river posts, to establish automatic gauges for definition of sea waters solinity, chlorids, pH, dissolved oxygen, petroleum products, biogenic elements, precipitation at island stations and sea platforms.

In view of absence in Kazhydromet of a special hydrometeorological sea vessel, we support the offer of Azhydromet, Roshydromet about joint realization of observations in the open sea part on vessels belonging to these services.

The tasks package on technical modernization of a network of stations and posts (observation, communication facility, collection and processing of information) is being developed.

The equipment of stations of the network is supposed to be carried out on two main directions:

- completion of stations and providing of observation types with reliable, calibrated measuring instruments, organization of complete cali-up calibration and tare of measuring instruments under Kazhydromet Service;

- reequipment of the observational network with steady transfer to the automatized observational network. At that we support the idea of the technical policy unity of hydrometeorological Services of Caspian region countries in the field of observations.

The existing communication facility does not provide operative passage of the information, that in turn has an effect for forecasting and scientific analysis, and, at the end, - on hydrometeorological service.

For the solution of these tasks we consider that coordination of works on collection, processing, storage (creation of a databank) in KASPAS frameworks, at creation of basic program systems, which development is conducted in research hydrometeorological institutes of the near-Caspian countries, and also use of program systems hydrometeorological services of the different countries are necessary.

For improvement of systems for data collection and processing of observation Kazhydromet plans to create a Regional Centre for collection and processing of information (Mangistau, Atyrau and Ural oblasts) on the basis of a communication center of Atyrau Hydrometeorological Center.

After implementation of these tasks it is planned to start fulfillment of the next stage of the program on organization of monitoring of the near-Caspian region. The main directions of the program are as follows:

- stabilization of observation network operation under the complete program within the framework of complex hydrometeorological monitoring of Caspian sea and its basin environment;

- re-equipment of the network of stations and posts by modern tools of observation, transfer, collecting and processing of the information;

- development of techniques, methods of forecast of hydrometeorological phenomena and environment pollution, application of data of complex monitoring to the near-Caspian region economy, establishment and approvement of the list of deliverables according to the monitoring program;

- purchase of a vessel and organization of Kazhydromet's works on water area of the Kazakhstan part of the Caspian Sea.

The performance of the planned program will allow to provide an economic complex of the Caspian region with high-grade regime and prognosis hydrometeorological information and will help to solve problems connected to increase in the Caspian sea level, influence of storm surge events and continuing growth of pollution of the sea and close-fitting to it territory of the republic.

Now water quality control for the northeastern Caspian Sea is conducted on more than 30 hydrochemical parameters, such as: petroleum, heavy metals, dissolved oxygen, nitrites, nitrates, synthetic superficial-active substances, sulfur and halogen containing components etc.

The petroleum concern to the most widespread and dangerous substances polluting water of a northeastern part of the Caspian Sea.

Petroleum pollution negatively effects on human health, flora and fauna of the sea and, as a whole, on ecological balance of the Caspian region.

Most petroleum come into the sea at drilling coastal petroleum slits and flooding of them under storm surges, transportation of petroleum by a waterway, with waste water from oil refining, chemical, metallurgical and other industries (for example, with a raising of the sea level up to 26,6 м more than 150 petroleum slits have appeared in the flooding zone of the sea. In particular, the flooded slit «Tazgigali-Southwest - 1» from time to time was gone out by petroleum which polluted the reservoir. At the moment of an inspection the concentration of petroleum in this area achieved 6,2 ПДК, i.e. 0,32 mg/l.).

Based on data on hydrochemical analysis, the sea waters of a northeast part of the Caspian sea are qualified as «moderately - polluted».

According to the Republic legislation on environment protection, development of petroleum and gas fields should be implemented with the least damage for ecosystem of the Caspian sea. However because of the spontaneous hydrometeorological phenomena negative environmental impacts are observed rather often. According to data of Kazhydromet there were cases of excess of MPC of petroleum in the northeast part of the Caspian Sea. Most often the salvo of pollutants into the sea, including petroleum, occurs during catastrophic storm surge phenomena. The petroleum, which are washed off from a coastal zone, disturb ecological balance. The light petroleum rise and spread on a sea surface, heavy ones spread on a bottom and stick to it. Coastal desalinated waters, which ensure primary production of restoration and riches of all sea biocenozes are mostly run the danger of pollution. Talking about the Caspian Sea problems the President of Kazakhstan N.A.Nazarbaev said: "Today we have a lot of troubles with Caspian Sea".

The environmental observation over the Caspian region, development of forecast methods and distribution of warnings on the spontaneous hydrometeorological phenomena are the basic activity of Kazhydromet.

Regular observation on storm surges in northern part of the Caspian Sea is very important, because largest pollution Kazakhstan's part of Caspian Sea is caused by flooded petroleum fields, industrial and municipal sources, and further by barge transportation and pipelines. According to the Kazhydromet data, height of storm surge wave achieves 2,5 m during some periods, that results in flooding of sizable coastal territories, most part of which occupies petroleum field where there are no observation sites of Kazhydromet now.

Thus, the establishing of additional hydrometeorological observation sites will allow Kazhydromet to more actively and effectively participate in the solution of problems on implementation of preventive measures on petroleum flooding, and emergency warning, readiness to them and respond methods.

In order to decrease any risk at emergencies it is necessary to pay much attention to such important sides of industry, as the accident prevention and environment protection. These two directions have the direct connection with the main Kazhydromet activity, which consists of realization of environment monitoring, distribution of the spontaneous hydrometeorological phenomena warnings and environment pollution, and also realization of state hydrometeorological testing at designing and building the objects and structures. In order to solve the problems connected with the accident prevention and environment protection of the Caspian Sea more comprehensively, Kazhydromet will be glad to offer the Companies its services in providing the specialized hydrometeorological information and conducting the following kinds of activities:

- State hydrometeorological testing;
- Weather forecast from 1-7 day, to one month;
- The forecast of wind;
- The storm warnings about the dangerous phenomena and spontaneous hydrometeorological phenomena;
- Hydrometeorological information from sea hydrometeorological stations Aktau, Fort Shevchenko, Kulaly, Peshnoy Island;
- The hydrological forecasts of water level and ice regime (daily, decade and monthly);
- The storm warnings about then storm surge phenomena;
- Establishment of hydrometeorological observation points in a coastal zone and on water area of the sea;
- The expeditionary specialized observation on hydrological regime and sea waters quality;

- The analysis of sea water for the contents of petroleum hydrocarbon, heavy and transitive metals, synthetic surface-active substances (more than 30 components);
- The analysis of a sea ground for the contents of petroleum and metals;
- Hydrobiological observation on kinds and number of phito- and zooplanktons, zoobentos, perifitons;
- The data of hydrochemical observation on a shallow part of the sea (since 1989) and its deep-water part (since 1995).

Kazhydromet has the significant engineer and technical and scientific staff, which can solve the large tasks. So, experts of KazNIIMOSK conduct scientific researches on a problem of the Caspian Sea more than 10 years. The institute has models, allowing to calculate long-term and short-term change of the Caspian sea level. The hydrodynamical model of the Caspian Sea created in KazNIIMOSK with the support of the Danish hydraulic institute, allows to give the forecasts of coast flooding under the storm surge phenomena.

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Baseline Study Results on the Condition of the Northeast Caspian

By Gordon Beattie, Senior Consultant, Environment & Resource Technology Ltd (ERT)

The Offshore Kazakhstan International Operating Company (OKIOC) has a Production Sharing Agreement with the Government of the Republic of Kazakhstan (RoK) which includes the drilling of six exploration wells in the Northeast Caspian.

The shallow waters of the North Caspian and the wetland habitat of its coastal zone, in particular the extensive reed bed communities along the north coast and delta areas, make this the most biologically productive area in the Caspian Sea. However, it is also subject to a wide range of environmental conditions and stresses, including: fluctuating sea levels (short- and long-term), onshore flooding, sediment movement during storm surges, extreme temperature variations and winter ice cover. The dynamics of this environment mean that its fauna and flora are highly adapted to change and environmental stress.

In order to determine the baseline conditions in the area, the partners within OKIOC and the former Kazakhstancaspishelf Consortium have undertaken a wide range of environmental surveys in the Northeast Caspian in the last five years. These include:

- monitoring associated with the seismic exploration phase (1994 – 1995)
- seasonal baseline surveys of the Northeast Caspian (1996 – 1998)
- an ice field programme (1996 – ongoing)
- metocean data collection (1997 – 1998)
- monitoring programme in connection with exploration drilling (1998 – ongoing)

The OKIOC environmental survey programme has enabled a resumption of the collection and analysis of environmental data for the Northeast Caspian. Such work had lapsed following the break-up of the Soviet Union.

This work has involved RoK scientists and institutes including KazNIIRKh, ENVIRC, Kazhyrdromet, a number of ecologists from the institutes of the Academy of Sciences, and other RoK laboratories, supported by international scientists from ERT, ADL and Nordeco. The results of this monitoring programme and of extensive literature reviews have been a key input to ecological sensitivity mapping and environmental impact assessments undertaken by OKIOC.

For biological parameters (aquatic vegetation, plankton, benthos, fish, birds and seals) the findings of the OKIOC surveys have built upon and largely confirmed previous knowledge regarding the distribution of fauna and flora. Useful site-specific and wider regional data have been accumulated, allowing up-to-date seasonal comparisons of numbers, concentrations, biomass, structure and diversity in biological communities.

The period of sea level rise between 1978 and 1995 created additional aquatic habitat in the North Caspian, which has generally been beneficial to biological communities. For example semi-migratory fish such as carp, bream and vobla, which have a relatively low salinity tolerance, have had increased areas in which to

feed and for juveniles to ongrow. However, it is worth noting that sturgeon stocks both here and in the wider Caspian are under critical pressure. This is through a combination of overfishing, destruction of river spawning grounds and pollution (mainly via DDT and similar pesticides).

The OKIOC environmental baseline programme has included analysis of water and sediments for the following parameters:

- hydrocarbons
- heavy metals
- phenols
- biogenic elements (nitrogen and phosphorous compounds)
- redox potential and biological oxygen demand
- particle size analysis of sediments

In addition fish tissue has been subject to pathomorphological and chemical (hydrocarbons and heavy metals) analysis.

Before the OKIOC programme commenced the North Caspian was generally regarded as moderately polluted and the Ural Furrow, which acts as a natural sink for contaminants, as severely polluted. However, the extent of environmental contamination (including hydrocarbons and heavy metals) found by OKIOC in water, sediments and fish tissue in the Northeast Caspian has mostly been less than previously recorded and largely comparable to background levels in other estuarine/marine areas. The shut-down of many industrial plants along the rivers, especially on the Volga, and the consequent reduction in contaminant loadings in river outflow has been suggested as a principal contributory factor behind this apparent recovery.

Total hydrocarbon content (THC) in seawater and sediments is generally low and comparable to background levels elsewhere in the world, with isolated 'hot spots', eg in the vicinity of old abandoned wells in the coastal flood zone along the east coast. Most measurements of THC in seawater indicate that in recent years the average values have not exceeded the Maximum Permitted Concentration (50 μg/l, ie 50 parts per billion) for water bodies where fishing is conducted. The average level in the autumn baseline of 1997 was 29.6 μg/l. Concentrations of hydrocarbons in seawater (filtered and unfiltered) within the range 1-100 μg/l have been reported from studies in the western North Atlantic and Gulf of Mexico, while baseline values in the range 1-10 μg/l have been reported in the North Sea,

Aliphatic hydrocarbons present in sediments are mainly biogenic (eg from plant wax, algae and phytoplankton), although a low level of petroleum contamination is evident. Aromatic hydrocarbons are of mixed petrogenic and pyrolytic origin, with generally low concentrations of polycyclic aromatic hydrocarbons (PAHs) in sediments.

There was some increase in the THC measured in sediments in the autumn of 1997 compared to the spring of 1996, but laboratory analysis demonstrated that the hydrocarbons were again primarily of biogenic origin.

With regard to heavy metals concentrations in seawater, copper was the only one of eleven elements found by both RoK and international laboratories to be above MPC during the baseline surveys of 1996 – 1997, although RoK laboratories also found lead levels to be above MPC in both years and chromium, iron, mercury and zinc to be above MPC in 1996 only. The concentration of most metals in water was measured as lower during the autumn of 1997 than the spring of 1996.

Heavy metals concentrations in sediments are generally consistent with or lower than results reported for other areas of the world, including the North Atlantic, New England, the Gulf of Pagassitikos in the Mediterranean, and various areas of the Middle East. The highest levels in the Northeast Caspian were found at the Ural river outflow and in the northeast of the area studied. Where deeper sediment samples have been taken, these show higher concentrations of most metals than in surface sediments.

Phenol content in waters appeared to show a decreasing trend compared to previous data and between 1996 and 1997, although the latter is possibly due to seasonal variation. As measured by RoK scientists in 1997, it has now occurred at lower levels than MPC. Phenol levels are generally at background concentrations in sediments.

The content of biogenic elements (nitrogen and phosphorous compounds) and oxygen dissolved in water corresponds to average long-term values for the Northeast Caspian

Sediments at most locations sampled are well oxygenated with values for redox potential which are characteristic of healthy marine sediments.

BOD_5 (biological oxygen demand) in water is significantly lower than MPC, and there is no evident tendency towards an increase in BOD_5 or anthropogenic impacts in water or sediments.

In fish tissue/egg samples analysed, total aliphatic hydrocarbons have been within background levels and are mainly from natural sources, although inputs attributable to mineral oil sources were clearly evident in fish liver tissue at some sampling stations, albeit at relatively low levels.

With regard to heavy metals in fish eggs and tissues, barium, copper, iron and zinc showed higher accumulations than other elements. However, most metal concentrations were comparable to background conditions elsewhere in the world, the apparent exceptions being barium, iron and nickel.

Contaminant concentrations at OKIOC's proposed drilling locations have generally been within the range of values sampled in the wider Northeast Caspian, although concentrations of heavy metals in sediments are lower and have less variability.

Sampling has also been carried out in the vicinity of onshore oil wells in the floodzone of the east coast of the Northeast Caspian. Six wells (the most visually contaminated) in selected areas were investigated. Five had high levels of PAHs and THC in surrounding soils, as expected. One site was less contaminated, with hydrocarbon concentrations similar to background levels in marine sediments; this was possibly due to regular wash-out by storm surges.

In conclusion, the Northeast Caspian environment is complex, challenging and sensitive. It is very dynamic, and its fauna and flora are therefore adapted to a high degree of environmental variability and stress. There is critical pressure on sturgeon stocks, both here and in the wider Caspian. However, the present extent of environmental contamination in the Northeast Caspian is significantly less than previously recorded or supposed and largely comparable to background levels in other estuarine/marine areas.

V. Principles of Effective Oil Spill Response

Principles of Effective Oil Spill Response Session

Eric Anderson, Jenifer Baker, Craig Buckingham, Chris Innes, Chris Morris, John Ostergaard, Roderick Thomas, Nick Vanderkooy

Notes

Effective Spill Response
Aims

Raise awareness of oil spill response issues to encourage informed discussions later

Set environmental context of the Caspian Region

Encourage a "working together" contingency planning ethos

Promote tiered response philosophy

Fate and Effects of Oil Spills in the Caspian Region

Objectives

A consideration of possible sources of spilled oil, the changes that occur and the potential environmental effects (ecological, commercial and amenity)

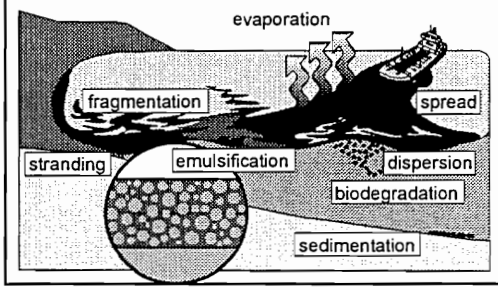
Properties of Oil

- Specific gravity / API: *density*
- Viscosity: *resistance to flow*
- Pour point: *below which oil does not flow*
- Volatility: *propensity to evaporate*
- Asphaltene: *propensity to emulsify*

Notes

Fate of Spilled Oil

Combined weathering processes



Oil as a Pollutant

- Oil characteristics
  - complex nature
  - biodegradable
- Impacts:

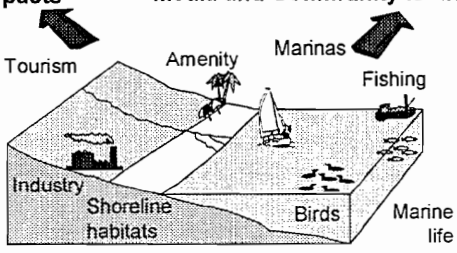
Toxic — Smothering

Mortality & sub-lethal effects

Non-persistent oils — Persistent

Environmental Considerations

Ecological impacts — **Media and Community issues**



Aquaculture

Notes

Impacts of Oil

- Ecological
  - birds, fisheries, shorelines etc...
- Amenity
  - leisure, watersports etc...
- Commercial
  - fishing, mariculture, water intakes etc...

Shoreline Types

decreasing energy ↓

- Cliffs
- Rocks
- Pebble / cobble
- Sand
- Mud
- Saltmarsh / mangrove

↓ increasing vulnerability

OILMAP
A Computer Model

Objectives

Demonstrate the capabilities of a computer model. Examine the fate of oil from the scenarios identified in the previous session

Notes

Oil Spill & Circulation Modelling

Their Potential Application In The Caspian Sea

Presentation by Eric Anderson, ASA

Fate and Effects of Oil Spills

Discussion

- Discuss the risks
  - Likely spill scenarios
    - oil type, quantity, locations, fate of oil, environmental conditions, etc...
- Discuss the likely impacts on the environment in the region

✎ Record the conclusions

Lunch

Notes

The Contingency Planning Process

Objectives

Examine the key elements of integrated contingency planning

Discuss the development of co-operation between operating companies and government

Overall planning responsibility

- Lead agency
- Specialist agencies
- Industry

Tiered Response Concept

Spill size	local	vicinity	remote
large	3	3	3
medium	2	2	3
small	1	2	2

Proximity

Notes

Tiered response

- Formalises common sense
- Deals with spills of all sizes
- Risk management approach
- Avoids excessive investment in equipment and personnel
- Maintenance and training also more cost effective

Contingency plans

- Strategy section
  - responsibilities
  - policy
  - rationale
- Operational section
  - action check list
  - information

Strategy section

- Introduction
  - executing agency
  - geographical area covered
- Assessment of risk
  - frequency, size of spills
  - types of oil
  - spill scenarios
- Movement and fate
  - oil characteristics
  - winds and currents
  - computer models

Notes

Strategy section

- Resources at risk
  - sensitivity maps
  - priorities for protection
- Selection of response techniques
  - limitations
  - shoreline types
  - locations of equipment
  - contracts
  - manpower
  - storage and disposal

Strategy section

- Outline response organisation
  - roles and responsibilities
  - communications
- Training and review
  - programmes for all levels
  - drills and exercises
  - testing and maintenance of equipment
  - reviewing and updating

Operational section

- Notification
- Evaluation
- Response decisions
- Clean up operations
- Communications
- Termination
- Cost recovery

Notes

Oil Spill Strategies and Limitations
Objective

Examine the main response options (strategies) and consider their limitations

Discuss the feasibility of employing the various strategies in the Caspian region

Strategies

- Isolate source
- Monitor and evaluate
- Dispersants
- Contain and recover
- Protection
- Shoreline clean-up
- Burning
- Bioremediation

Monitor and Evaluate

- Safety
- Natural weathering
- Environmental
- Monitor movement of oil
  - aerial surveillance
  - computer tracking forecasts
- Be prepared to take appropriate action

Notes

Dispersants

- Permission - policy pre-approval
- Effectiveness
- Encounter rate
- Logistics

Contain and Recover

- High capital investment
- Logistics
- Operational limitations
- Encounter rate
- Training
- Temporary storage & disposal

Protection

- Prioritisation of sensitivities
- Effective use of available resources
- Logistics and practicality
- Cost effectiveness

Notes

Shoreline Clean-up

- Shoreline type
  - sensitivity
  - amenity
  - access
- Project management
  - labour intensive
  - low-technology

Emerging Technologies

Burning of floating oil

- Combustion requires:
  - igniters
  - low water content in oil
  - minimum oil thickness (3mm)
  - specialised containment booms

Bioremediation

- Accelerated biodegradation:
  - addition of nutrients
  - addition of micro-organisms

Strategies
Summary

- Various response strategies available
- May use a combination during a spill
- Their use will raise a variety of issues
- Policy pre-approval necessary for some strategies

Notes

Net Environmental Benefit Analyses
Objective

A presentation by Dr Jenifer M Baker

Break

Practical Management of Oil Spills
Objectives

To highlight and discuss how an oil spill should be managed from a practical view point

Notes

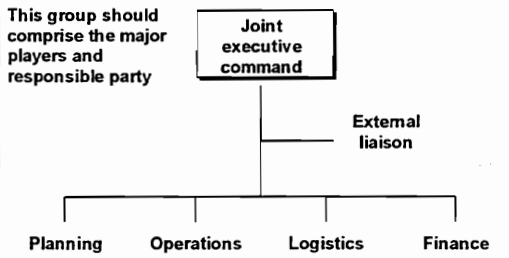
Framework for response

- Who would be the lead authority for different scenarios?
  - Operating company can handle small spills
- Ministry responsible for legal powers
  - what happens when oil crosses the frontier
- Part of disaster response organisation

Responsibilities

- How does the responsibilities structure cope with the integration of non- statutory bodies
- Liabilities and indemnities sorted out.
- Regional / international agreements in place / ratified
- National contingency plan

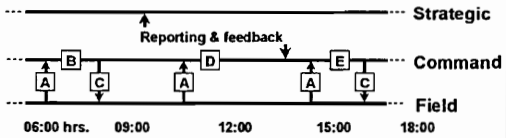
Organisational Structure



The above four functional groups can be made up from authorities, insurers, contractors, oil company personnel, and others.

Notes

The Planning Cycle



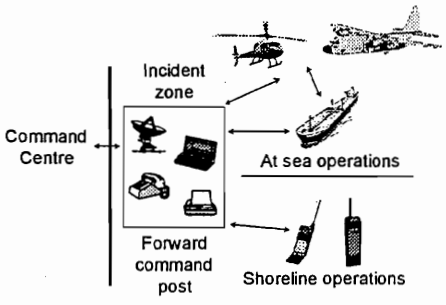
- A Field reports from Supervisors to Operations Manager
- B Assessment meeting
- C Feedback to Supervisors: forecast, objectives, priorities...
- D Tactical operations meeting
- E Planning meeting

Incident Action Plan

From ICS system developed every 12 hours

- Safety messages
- Main objectives
- Resources
- Environmental considerations
- Communications
- Weather

Communications Plan



Notes

Phases of Response

Emergency — Project

Callout

Assessment

Mobilisation

Operations

Demobilisation

Overall structure of organisation

- Lead Agency
- Supervisors / On-scene Commanders
- Responders

Liability and compensation for oil pollution damage from tankers

A presentation by Dr Tosh Moller, ITOPF

Notes

International conventions

- Ensures compensation for clean up costs and damages
- Uniform treatment of claims

Outline

- Features of compensation
- P & I Clubs
- CLC and FC
- IOPC Fund

Strict liability

- Tanker owner liable regardless of fault
- Very few exceptions
- Facilitates prompt compensation without litigation

Notes

Scope of compensation

- Reasonable costs associated with
  - preventative measures
  - property damage
  - consequential and pure economic loss
  - environmental damage (restoration costs)

P and I Clubs

- Third party insurers
- Concept of mutuality
- International group (15 clubs cover 90% of world's tanker tonnage)
- Reinsurance
- Correspondents

CLC 69

- Applies to
  - pollution damage
  - contracting state
  - persistent oil
  - laden tankers

Notes

Fund Convention 1971

- Applies when
  - damage exceeds CLC limit
  - tanker owner cannot pay
  - no CLC liability
- Applies to
  - pollution damage
  - contracting state
  - persistent oil
  - laden tankers

FC 71 compensation limit

- US $85 million (including amount paid under CLC)
- Fund also indemnifies the tanker owner by the lesser of US $ 47 / ton or US $ 8 million

1992 protocols to CLC and FC

Revised compensation limits

- CLC
  - US$ 4.3 for tankers < 5,000GT
  - Additional US$ 596 / GT for tankers >5000GT up to maximum of US$ 85 million
- FC
  - US $ 192 million irrespective of tanker size

Notes

1992 protocols to CLC and FC

Revised scope

- Includes spills from unladen tankers
- Includes pure threat situations
- Clarification of pollution damage
- Extension to EEZ
- Removal of tanker owner indemnification

IOPC fund

- Assembly
- Executive committee
- Secretariat

IOPC fund contributors

- Any person in a fund state receiving greater than 150,000 tonnes of contributing oil annually by sea transport
  - contributing oil = crude oil and heavy fuel oil

Notes

IOPC fund contributors

- Contributions assessed when claims to be settled
- Oil receivers pay , not governments
- Importers pay , not exporters

International system of compensation

- "Reasonable" means measures should:
  - be based on technical appraisal of the incident
  - seek to enhance natural process of oil removal
  - not be purely for public relations reasons

AIOC

A presentation by Nick Vanderkooy

A focus on the emergency response Subcommittee formed under Azerbaijan Co-ordinating Council, industry capabilities and co-operative agreements

Promote the need for tier 2 co-operation in the Caspian region

Notes

Effective Spill Response

Discussion

- A discussion on the principles of effective response
- Identify issues for discussion on Day 3
- ✎ Record the conclusions

NET ENVIRONMENTAL BENEFIT ANALYSIS FOR OIL SPILL RESPONSE

Jenifer M. Baker
Consultant to IPIECA

ABSTRACT

In many cases a possible response to spill is potentially damaging to the flora and fauna and/or their habitats, or to socio-economic activities. The advantages and disadvantages of different responses need to be weighed up and compared both with each other and with the advantages and disadvantages of natural cleanup. This process is known as Net Environmental Benefit Analysis (NEBA). The NEBA approach accepts that some cleanup responses may cause damage but may be justifiable because of overriding benefits. Groundwork for NEBA is advocated as part of the overall contingency planning process, because post-spill decisions are best and most rapidly made in the light of pre-spill analyses, consultations and agreements by all the appropriate organizations.

TEXT OF WORD-SLIDE

(NB other slides to be used will be site photographs from case histories)

NET ENVIRONMENTAL BENEFIT ANALYSIS

- Collect information on area
- Review previous experience
- Predict environmental outcomes
- Compare advantages and disadvantages
- Weigh advantages and disadvantages

Optimum response may not avoid all disadvantages

VI. US Perspective on Contingency Planning

Overview of Oil Spill Response And Contingency Planning In The U.S.

By Richard Muth

December 1998

OVERVIEW OF OIL SPILL RESPONSE AND CONTINGENCY PLANNING IN THE U. S.

(SLIDE 1) This paper will present a contingency planning and response management system that has worked for the United States. The United States has been in the pollution response business for many years. Some of our early laws date back to 1924. We started making major changes to these laws and regulations in 1972. Based on the experiences we have gained throughout the years, we have continued to improve our ability to respond to pollution incidents, evolving our laws, regulations, and response systems to arrive to the point where we are today.

(SLIDE 2) There are five separate topics within this paper. A quick overview of the legislative framework that has evolved from the early 1970s, highlighting some significant changes that have occurred due to major pollution incidents suffered within the jurisdiction of the United States, will provide background information for our current system. As a result of these incidents, a National Contingency Plan has been developed. Significant aspects of this plan and a discussion of how those aspects have standardized our national response system will follow. There will also be a discussion about some of the immediate outcomes of the Oil Pollution Act of 1990 (**OPA90**). These outcomes include the establishment of Area Committees, the increased responsibilities placed upon the responsible party, and the development of a response organization program that helped standardize response efforts. Finally, a "before and after" discussion will focus on the specific improvements OPA90 made to the National Response System.

(SLIDE 3) As mentioned earlier, U. S. laws concerning oil spill response have generally been enacted as a reactionary measure - responding to the review of a major incident and focusing on the weaknesses exposed during that response. However, as these laws changed, the overall goal of our national response system has not! Even though there are many words in various places, the goal is simply "Minimize the Consequences of Pollution Incidents."

The Federal Water Pollution Control Act of 1972 (**FWPCA**) strengthened the regulatory framework for responding to oil spills and established regulations for pollution prevention. It set out clear response authority for the federal government and created specific teams for support of the Federal On-Scene Coordinator (**FOSC**). These special teams included experts in pollution control, response, and clean-up efforts - the National Strike Force. The FWPCA also established a small $35 million fund for federal response efforts. In 1977, the Clean Water Act amended the FWPCA. Among other items, it extended Federal boundaries to 200 miles off our coastline.

In 1980, recognizing the need for broad hazardous material response legislation, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA**). This law outlined the requirements for federal activities associated with response to hazardous materials incidents.

In 1989, the Exxon Valdez incident occurred. In response to areas of improvements identified in the review of the response to this incident, the Oil Pollution Act of 1990 was enacted.

(SLIDE 4) The Oil Pollution Act of 1990 clearly defined responsibilities of all involved parties - federal, state, local, industry, and responsible parties. It also allowed state authorities to make additional regulations in certain environmentally sensitive areas. Recognizing the need to go beyond response authorities, this law provided requirements intended to PREVENT tank vessel spills. These actions included: (1) placing a time limit on the length of mariner licenses; (2) requiring drug and alcohol testing of mariners at random times and after marine casualties; (3) providing a mechanism for criminal records checks; (4) the study and upgrade of vessel traffic systems; (5) the establishment of manning standards for commercial vessels; (6) establishing a time table for the phase-out of single hulled tank vessels; and (7) establishing additional requirement for pilotage and escort vessels for tankers.

OPA90 also identified measures to improve PREPAREDNESS activities. The federal equipment inventory was increased at the three Strike Team sites. 19 additional pre-positioned equipment sites were also established and maintained under a yearly program. Response plan requirements for tank vessels and facilities were enacted. These plans required the identification of known private sources of response equipment in amounts to ensure adequate availability of resources for incidents involving a worst-case discharge of the cargo. This allowed for contracting with private industry. Area Committees were established. They developed area contingency plans and local response organizations. A national computer system listing response resources was created. And finally, a national preparedness for response exercise program was formed from an existing program. This program provided a mechanism with which the local response system could be exercised to ensure efficiency and effectiveness.

RESPONSE authorities were enhanced. The Federal On-Scene Coordinator was given full authority to direct action of all of the responding resources. The FOSC was guided by the National Contingency Plan and encouraged to use advanced response techniques such as dispersants and in-situ burning. To expand and encourage state response operations, a mechanism for federal reimbursement of state expenditures during response operations was established.

Finally, liability for RESTORATION and COMPENSATION for damages was created. The federal response fund was increased to $1 billion. This fund would cover costs for damage assessment, lost revenue, and the potential loss of future earning capability. It also covered the restoration of natural resources and personal property. Liability limits for responsible parties were increased. The "spiller pays" philosophy was reinforced. Limits of liability were also established based upon the size and type of vessel. However, a responsible party could be held under unlimited liability for: (1) gross negligence or willful misconduct; (2) a violation of a federal safety, construction, or

operations law or regulation; (3) failure to report the spill incident promptly; (4) failure to provide reasonable cooperation with the federal response effort; or (5) failure to comply with any administrative order issued by the FOSC. Requirements for spill insurance were established. Civil and criminal penalties for spills were increased to $25,000 per day or $1000 per barrel. Failure to remove the spilled material or failure to comply with directions from the FOSC could result in a penalty of up to three times the cost of the clean-up, removal, and damage restoration operations.

(SLIDE 5) OPA90 provided the U. S. Coast Guard and Environmental Protection Agency with the capabilities to handle spill in the coastal and inland regions. In addition, the Outer Continental Shelf Lands Act (**OSCLA**) provided the U. S. Mineral Management Service (**MMS**) with the authority to oversee the development of offshore resources. It provides specific requirements for approval of drilling rigs, production platforms, oil spill contingency plans, operations, pollution prevention measures, and well abandonment procedures.

All offshore rigs are required to have contingency plans. These plans must contain information on response equipment and strategies, inspection and maintenance of equipment, spill trajectory analysis, detection and notification procedures, communication capabilities, disposal procedures, and dispersant use plans.

Pooling of industry equipment created response cooperatives. These cooperatives are established at strategic locations where they store and maintain spill response equipment.

MMS will conduct inspections and drills on the rigs. An unannounced drill program exercises the required contingency plans of these offshore rigs. MMS will arrive at the platform and tell the company to carry out a drill as if they had a spill, providing all information to simulate a spill at that time. MMS then provides the company with an evaluation of the companies ability to response. MMS inspects the drilling equipment and materials. If any deficiencies are discovered, enforcement options include warnings and shutdown of the facility.

OSCLA provides for training requirements as well. Personnel must receive training in operations, emergency procedures (including spill response and management), and safety protocols.

(SLIDE 6) The National Contingency Plan (**NCP**), required by CERCLA, was last updated in 1994 as a response to new legislation from OPA90. The NCP not only outlines response authorities; it also describes the partnerships between federal response agencies, the industry (responsible parties and private contractors), and the public. It also identifies the national interests - people, environment, property, and economy.

The NATIONAL RESPONSE SYSTEM is defined within the NCP. Components include the National Response Team, Regional Response Teams, Area Committees, FOSCs, Federal Agencies, State Agencies, Local Agencies, and the private sector.

Roles and responsibilities of all involved in pollution response are clearly identified. As mentioned earlier, the FOSC has the authority to direct all resources in the response effort. The actions of the responsible party are also guided by the NCP. The responsible party is identified as the first line of response, taking responsibility for cleaning up the spill.

To enhance response activities, the NCP outlines preparedness measures. Regional and area contingency plans are required. These plans, in conjunction with the vessel and facility response plans required by OPA90, give a four-tiered planning approach. Logical information flows from the NCP to the Regional and Area Contingency Plans, to which are melded the vessel and facility response plans. Currently, there are 48 different Area Contingency Plans for the coastal regions of the US. Training and exercise requirements are also identified. Each company must conduct a series of drills, ranging from simple notification drills to equipment drills to major spill response simulations.

The NCP also outlines the necessary steps that must be taken in all response operations. Direction is provided for: proper notification of cognizant authorities; requirements for preliminary assessments; proper containment, countermeasure, clean-up, and disposal operations; and necessary incident documentation and cost recovery.

(SLIDE 7) This complicated diagram shows the relationship between the various member organizations of the National Response System. The National Response Team is composed of representatives from16 federal agencies. It is chaired by the Environmental Protection Agency and co-chaired by the Coast Guard. Other agencies on this team include the Department of Interior, the Department of Commerce, the Department of Justice, Health and Human Services, the Department of Transportation, the Nuclear Regulatory Commission, the U. S. Department of Agriculture, the Department of Defense, the Department of State, the General Services Administration, the Department of Energy, the Federal Emergency Management Agency, and the Department of Labor. This organization can be activated for major pollution incidents that exceed the capabilities of the regional team.

The subsequent layer shows the composition of the Regional Response Teams. The United States is divided into ten federal regions. However, due to geographical considerations, there are 13 regional teams. Team composition is identical to the NRT, with the addition of state representatives. The Regional Response Team is responsible for regional planning and preparedness activities within the region and to provide as-needed assistance to the FOSC in their response operations.

Below the RRT are the Area Committees. There are 48 Area Committees within the Coastal Regions of the US.

(SLIDE 8) The Area Committee is lead by either the EPA or the Coast Guard Federal On-Scene Coordinator for that area. Generally, these committees have responsibility in a specific geographic area that coincides with the jurisdiction of the lead agency. Due to varying environmental conditions, some Coast Guard Federal On-Scene Coordinators may chair more than one Area Committee.

Members of the Area Committee include various federal agencies (USCG, EPA, National Oceanographic and Atmospheric Administration, resource trustees, etc.), state agencies (environmental departments, emergency management agencies, transportation departments, safety agencies, etc.), local agencies (police, fire departments), and other non-governmental agencies (environmental groups, industry reps, vessel owners, facilities owners, private response organizations). The Area Committee develops the local contingency plan. They coordinate with the other emergency plans to establish response priorities and strategies. These plans identify the environmentally sensitive areas within each zone. This pre-planning provides the Federal On-Scene Coordinator with the ability to prioritize limited resources for situations that immediately exceed local capacity.

(SLIDES 9 - 10) The Area Contingency Plan will contain many sections that provide needed information to the FOSC. A physical description of the area provides the jurisdictional boundaries for the plan. Notification checklists identify key players who have to be notified of a spill incident due to their legal requirements or specific skills. Responsibilities of all government, industry, and non-government organizations are clearly spelled out. Response activities are identified. Priorities and strategies for environmentally and economically sensitive area, as well as wildlife protection and recovery methods, are defined. Procedures for the use of dispersants, in-situ burning, or other advanced response techniques are set forth. The response organization and the personnel that will fill those positions are identified. To enhance preparedness activities, worst-case scenarios are described, as well as proposed training and exercise plans.

(SLIDE 11 - 12) Information about environmentally and economically sensitive areas is expanded upon within the Area Contingency Plan. Information on the resources at risk, access to these areas, seasonal concerns, archaeologically or culturally significant sites, response prioritization, protective strategies, etc are fully developed and provide the FOSC with the basis to determine the operational goals and objectives. This allows the FOSC to focus on the operational priorities of protecting human health and safety, environmental resources, and economic resources within his/her area of responsibility.

(SLIDE 13) Up to this point, a variety of plans have been discussed. This diagram shows the relationship between each plan. As you descend down from federal to regional to local plans, the context of these plans change. The federal plan outlines the big picture items necessary for successful standardization and coordination of all response resources.

Regional plans start to get into issues that are below the national level. They may discuss regional aspects in relation to response technologies, methodologies, and strategies that are best suited for their particular region. Within the Regional plans, use of advanced response technologies is outlined. Processes for approvals and procedures are stated. This allows the region to quickly choose the best response methods for the given incident, i.e. dispersants, in-situ burning, other mechanical methods, etc.

Local Area Plans provide immediate information to the Federal On-Scene Coordinator on environmental, political, and economic issues. This information allows the FOSC to attack the incident in the most effective way possible.

Vessel and Facility Plans provide the responsible parties with the pre-planning strategies and tactics necessary to minimize the impact of the spill. They outline immediate procedures, notifications, and dictate policy necessary to initiate the response actions.

These are many plans with one common goal - minimizing the consequence of the spill!

(SLIDE 14) This diagram outlines the established procedure for an oil spill incident. An incident occurs which requires notification of the federal government. This notification generally is given to the National Response Center. The National Response Center is a Coast Guard staffed organization identified within national laws and regulations as a necessary entity to notify immediately upon discovery of a spill. They have the capability to quickly assist in the notification procedure. Often, individuals other than the responsible party report spills. The National Response Center routes the report to the responsible FOSC, starting the response actions.

The FOSC, after assessing the notification may need to contact the National Resource Trustees. These Natural Resource Trustees are federal agencies that have jurisdiction over a particular natural resource. In many cases, the Department of Interior has the responsibility to maintain and restore resources that have been damaged by a spill. They require notification so they can start their process rolling.

The FOSC may determine that it is necessary to use one or more of the Special Teams mentioned within the National Contingency Plan. Special Teams are organizations or unit precisely identified due to their specialized response capabilities. The National Strike Force is comprised of four special units designed to provide response equipment and incident management skills. The Emergency Response Team is comprised of experts in chemical response from the Environmental Protection Agency. The Radiological Emergency Response Team has the capability to assist in radiological incidents. The Scientific Support Coordinator provided the scientific capabilities to determine the fate and effect of the spill in the environment. They also provide forecasting capabilities to help determine what type of response strategy would be most effective. The Navy Supervisor of Salvage provided salvage expertise for vessel incidents. This information

is vital in situations involving vessel grounding, tank ruptures, etc. The National Pollution Fund Center provides the funding for the federal response. They oversee the Oil Spill Liability Trust Fund established by OPA90.

(SLIDE 15) The aforementioned plans provide policy, guidance, and procedures for a response. They do not discuss any management system. However, recently, the Coast Guard has adopted the Incident Command System as their standardized response management system. This system allows the FOSC to maximize the unique abilities within the area, whether operational or support, to staff response and other elements with qualified personnel.

The top block shows the COMMAND structure. This block depicts a UNIFIED COMMAND that is composed of the FOSC, the state representative, the responsible party representative, and the local government representative. This joint organization coordinates the response effort. It identifies the overall goals and approves the strategies for the incident response.

Assisting the COMMAND is the COMMAND STAFF. The COMMAND STAFF is comprised of individuals with specialized skills in liaison, public affairs, safety, and legal issues.

The GENERAL STAFF consists of planning, operations, logistics, and finance sections. The PLANNING SECTION helps develop strategies, maintains status on resources and situation, and keeps incident documentation. The OPERATIONS SECTION conducts the tactical actions to carry out the strategies identified by the COMMAND. The LOGISTICS SECTION provides the needed support for the response. They arrange for food, facilities, medical, communications, ground support, supplies, etc. The FINANCE SECTION ensures cost documentation is done. They also purchase necessary supplies/services and assist in damage claims submission and processing.

(SLIDE 16) Does this system work? We believe it does. As shown in this diagram, prior to OPA90, there was an average of 28.4 incidents a year that spilled over 10,000 gallons each. After passage of OPA90, this average dropped 42%. Other statistics show a steady decline in both the total numbers of incidents and the total amount spilled.

(SLIDE 17) OPA90 had a profound effect on the response planning process within the United States. Prior to passage of this law, the only required plans were National Contingency Plan, Regional Contingency Plans, and the local FOSC Plan (which was written by the FOSC for internal use only within the Coast Guard). There was no industry input for response planning. Most facilities and vessels were not required to have response plans. Facilities were only required to have a Spill Prevention, Control, and Countermeasure plan if they stored an amount of oil above a minimum identified level. This plan did not require any pre-planning for response operations.

After the passage of OPA90, Area Contingency Plans and Area Committees were established. These plans and committees involved a variety of stakeholders - federal, state, local, industry, private, community, environmental groups, etc. OPA90 also required the development of the vessel and facility response plans that would address a variety of incidents, including a worst-case scenario. The difference is very visible. OPA90 integrated the contingency planning process and incorporated industry response plans to enable a systematic approach to response. Information on environmentally sensitive areas, historic, and cultural sites, as well as identifying local resources, are also included.

(SLIDE 18) OPA90 placed an increased emphasis on preparedness and training. Before its enactment, the Coast Guard's Reserve Training Center conducted six Federal On-Scene Coordinator/Regional Response Team tabletop exercises a year. These exercises simulated the activities of government agencies and did not move equipment. On average, units were exercised only once every 8 years.

After OPA90, the national Preparedness for Response Exercise Program (**PREP**) was created. Partnerships with Coast Guard, Environmental Protection Agency, Minerals Management Service, Office of Pipeline Safety, states, industry, and environmental groups were created. Six government led exercises are conducted a year, in addition to 12 industry led exercises. The difference is a noticeable increase in the level of spill response preparedness. The PREP drills allowed the movement of equipment and integration of stakeholders and public/private sector resources. With up to 18 exercises each year, units can now be exercised one every three years.

(SLIDE 19) Funding for the clean-up of oil spills increased dramatically. The Clean Water Act had a fund of no more than $35 million that could be used to clean up oil spills. It was appropriated government money that was supplemented with civil penalties obtained from violators of the law. At the time of the Exxon Valdez, there was only $9 million available, which was insufficient to cover the cost of the response.

OPA90 created a five-cent per barrel tax that resulted in a fund of $1 billion. Once this amount was reached, the tax ended. Civil and criminal penalties, as well as responsible party reimbursement for government response costs supplement the fund. This is a 30-fold increase in the oil spill response fund.

(SLIDE 20) Federal action was limited to two choices prior to OPA90. When an oil spill occurred, the FOSC would have to decide whether to "federalize" (take total control of the financial and operational aspects) of the incident or allow the responsible party to direct and pay for the clean-up. No response management system existed to effectively manage the incident. Each response organization brought their resources and executed their own response plan.

OPA90 allowed the FOSC to monitor most oil spills, monitor and/or direct those that are significant threats, and direct spills that are considered Spills of National Significance. It also allowed the FOSC to direct clean-up operations conducted by the responsible party through verbal or written guidance. This allowed the polluter to pay, but still enabled the FOSC to ensure adequate and appropriate response efforts were taken. This process also provided for a smooth transition if the responsible party runs out of money. The Coast Guard also adopted a standardized response management system that increased the effectiveness of all response operations by enhancing incorporation of outside resources into the response efforts.

(SLIDE 21) Several opportunities for improvement were identified by the review of the Exxon Valdez incident. The lack of information on the amount, type, and availability of response equipment was mentioned throughout the review. Prior to this spill, no system existed to calculate the amount or type of resources available nationwide. Additionally, only two Strike Teams existed, and their equipment inventory was limited to first strike measures only.

Because of this incident, OPA90 was filled with measures to increase the national equipment inventory. A third Strike Team was added, with an appropriate increase in all team equipment inventories. In addition, 19 other location were selected to pre-position oil pollution response equipment. New Coast Guard vessels were developed with skimming capabilities. Vessel and Facility response plans required the immediate availability of either owned equipment or pollution response equipment contracted from a private source for use in case of a spill. As a result, more contracted private resources and alternative technology has made industry and government better prepared to respond. A nationwide inventory of response equipment is now available on a computer system, easily accessible by industry. A program to ensure compliance with voluntary industry guidelines enables the Coast Guard to maintain an effective and efficient first response capability nationwide.

(SLIDE 22) In summary, I have discussed a system that works within the United States. Appropriate legislation has been developed. A National Contingency Plan has been created and improved, as necessary, to provide a framework with which the National Response System can efficiently response to spill incidents of any magnitude. The National Contingency Plan focuses not only on response, but prevention and preparedness. It outlines the coordination necessary at all levels within the governmental structure. It places the responsibility on the shoulder of the responsible party. It involves the private sector and requires the development of private response resources. It places local responsibility within the community. And to compliment all the planning, I've discussed an incident management system that is recognized throughout the United States. This allows the easy integration of a multitude of resources from many federal, state, and local agencies into the response organization of pollution incidents.

Overview of Oil Spill Response And Contingency Planning In The U.S.

December 1998

1

OVERVIEW

- Legislative Framework
- National Oil and Hazardous Substances Pollution Contingency Plan
- Area Committees
- Response Organization
- OPA90 Effects

2

Evolving Legislative Framework

- Federal Water Pollution Control Act - 1972
- Clean Water Act Amendments - 1977/1978
- Comprehensive Environmental Response Compensation and Liability Act - 1980
- Oil Pollution Act of 1990

3

Oil Pollution Act of 1990

- Requirements Intended to Prevent Tank Vessel Spills
- Improved Planning and Preparedness Activities
- Enhanced Response Authorities and Capabilities
- Liability for Restoration and Compensation for Damages

4

OUTER CONTINENTAL SHELF LANDS ACT (OSCLA)

- Provides framework for development of the outer continental shelf.
- The U. S. Minerals Management Service provides oversight of the OSCLA activities.
- Establishes requirement for:
  - Oil Spill Contingency Plans
  - Oil Spill Response Cooperatives
  - Unannounced Drill Program
  - Inspection and Enforcement
  - Training

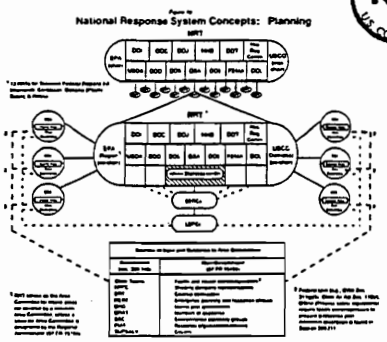
5

National Contingency Plan

- Defines the "National Response System"
- Identifies Roles and Responsibilities
- Establishes Framework for Planning and Preparedness Activities
- Describes Response Operations and Coordination Mechanisms

6

National Response System-Planning



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Area Committee

- Led By EPA or USCG FOSC
- Cover Designated Geographic Area
- Includes Government and Non-Government Participants
- Develops Area Contingency Plan Coordinated With Other Emergency Plans

8

ACP CONTENT

- Description of Area
- Notification/Response Checklists
- Responsibilities of government agencies, industry, and other stakeholders
- Public Affairs/Media Relations
- Response Management Organization
- "Worst Case" Planning Scenarios
- Training/Exercise Plan

9

ACP CONTENT (Continued)

- Identification of Environmental and Economically Sensitive Areas
- Response Priorities and Strategies
- Procedures to consider/approve use of Advanced Response Technologies (Dispersants, In-Situ Burning, etc.)
- Wildlife Protection/Recovery Plan
- Response Resources Available
- Geographic Response Plan

10

Sensitive Area Information

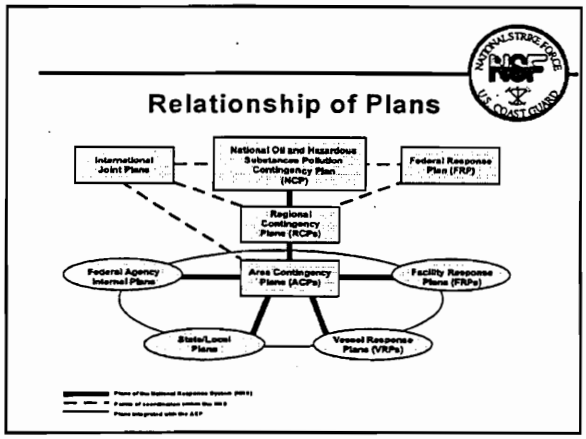
- Description and Characteristics
- Access - Directions
- Seasonal Concerns
- Resource(s) of Primary Concern
- Archaeological/ Cultural Significance
- Response Prioritization
- Available Local Expertise
- Emergency Phone Numbers
- Area Protection Strategies

11

RESPONSE PRIORITIZATION

- Protection of Human Health And Safety
- Protection of Environmental Resources
- Protection of Economic Resources

12



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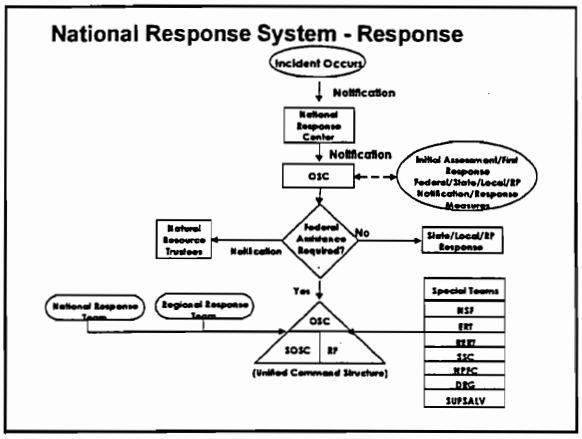

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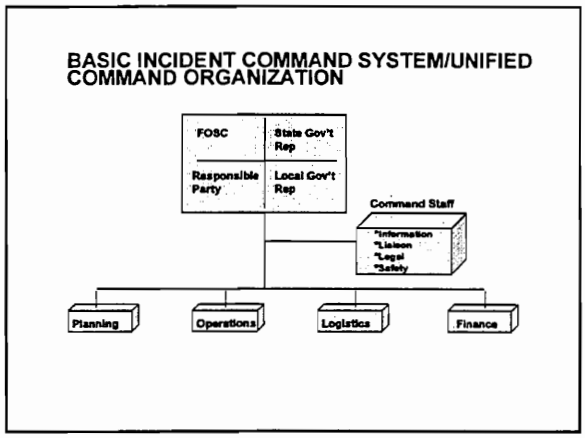

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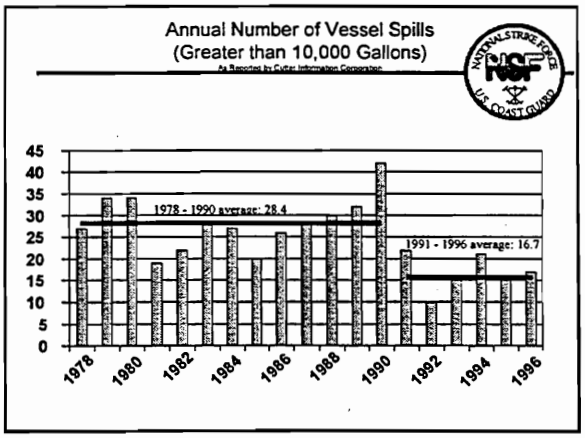

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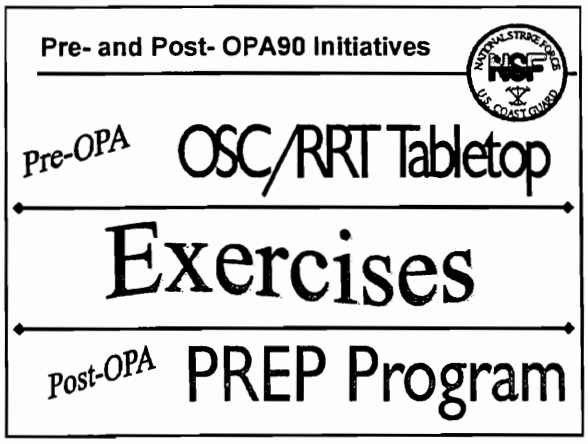

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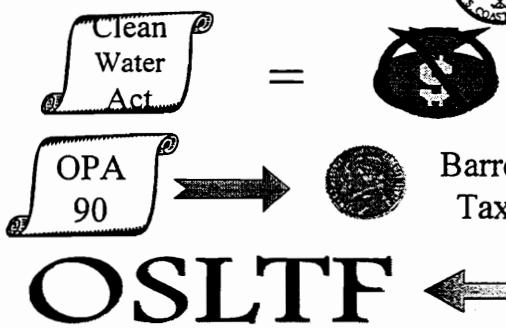
Pre- and Post- OPA90 Initiatives



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Pre- and Post- OPA90 Initiatives

Removal Authority
Command & Control

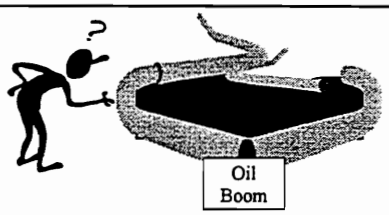
Pre-OPA | **Post-OPA**

"Federalize?" | Direct & Monitor

20

Pre- and Post- OPA90 Initiatives

Equipment Availibility & Analysis



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Summary

- **Legislation and NCP Provides Well Defined Framework**
- **Focus on Prevention, Preparedness, Response, and Restoration**
- **Coordination Among All Levels of Government and the Private Sector**
- **Inclusive Response Management System In Place**

Preparedness = Performance

22

Oil Spill Preparation and Response Workshop
Almaty, Kazakhstan
December 11, 1998

Oil Spill Contingency Planning, Research and Modeling
U.S. Department of the Interior
Minerals Management

Presented by: Ms. Renee Orr
Senior Program Coordinator
International Activities and Marine Minerals Division

The Minerals Management Service (MMS) is an Agency under the Department of the Interior. The Department of the Interior is one of fourteen Departments within the Executive Branch of the U.S. Government.

The MMS's mission is to manage the mineral resources on the Outer Continental Shelf in an environmentally sound and safe manner and to collect, verify, and distribute mineral revenues from Federal and Indian lands in a timely manner.

The MMS is the sole operational and environmental regulatory authority for the United States' offshore. MMS was formed in 1982 and has a strong record of environmentally safe and sound regulation of offshore operations. The MMS is the "cradle to grave" regulatory body --- from the tendering of mineral rights, through production, until platform decommissioning.

There are currently over 140 operators in the Gulf of Mexico operating over 6500 platforms.

Background

I'd like to now briefly discuss the major U.S. laws pertaining to oil spill prevention and response from offshore oil and gas operations. Generally, most of the recent legislation on oil spills has resulted from a preceding catastrophic oil spill.

In 1970 Congress repealed the Oil Pollution Act of 1924 and enacted the Water Quality Improvement Act (WQIA),which established stricter liability and penalties for oil discharges. This was precipitated by two major tanker spills in the late 1960s. The WQIA also granted the President authority to remove spilled oil and to sue the responsible party to recover response costs associated with the removal action, established an oil spill cleanup fund for this purpose, and required that tankers provide evidence of financial responsibility to assume oil spill cleanup costs.

The Federal Water Pollution Control Act of 1972 (also known as the Clean Water Act, or CWA) strengthened the regulatory framework for responding to oil spills as well as establishing specific requirements for effluent discharges into federal waters. Oil companies must obtain a National

Pollutant Discharge Elimination System (NPDES) permit from the Environmental Protection Agency before they can discharge effluents into federal waters. The CWA amendments extended the Federal government's jurisdiction to a boundary 200 miles off the United States coastline. The basic objective to this Act is the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. The CWA establishes as national goals:

- The elimination of all pollutant discharges into navigable waters.
- Interim water quality standards which will support the propagation of fish, shellfish and wildlife and, ultimately, water quality suitable for recreation purposes.
- The prohibition of all toxic pollutant discharges in toxic amounts.

This law also establishes a national policy for the implementation of major research and technology demonstration projects to help achieve the goals of the act.

MMS Regulatory Requirements:

The OCSLA provides the framework for making Outer Continental Shelf lands available for environmentally sound and safe development.

Implementing regulations of the OCSLA prescribe specific requirements for approval of drilling rigs, production platforms, oil spill contingency plans, drilling and production operations, pollution prevention and for well and platform abandonment. The regulations require redundancies in critical areas to enhance safety and environmental protection. Lessees must submit detailed applications and/or plans for review and approval before any operations can be conducted. MMS conducts a thorough environmental review of each Exploration Plan and Development and Production Plan and the associated Oil Spill Contingency Plan, considering all pertinent and available scientific information. Based on these reviews, site specific mitigation measures may be developed to address any identified concerns.

In writing our regulations, we strive to be performance oriented. We try to set performance levels for the company and let the company determine how best to meet those levels of performance. Since the company is submitting a plan for approval rather than meeting specific requirements, companies have the opportunity to devise a plan that best meets their needs. A company can normally submit a plan that addresses response for all of its facilities in a given area.

Best Available and Safest Technologies: Use of 'best available and safest technologies' is required wherever practicable and economically feasible.

Oil Spill Contingency Plans: Oil Spill Contingency Plans are required for all offshore oil and gas operations. These plans include descriptions of response equipment and strategies, equipment inspection and maintenance procedures, oil spill trajectory analyses, detection and notification procedures, communication capabilities, information on response team members and their training, procedures for disposing of recovered oil and materials, dispersant use plans, monitoring spill movement and other information.

Oil Spill Response Cooperatives: In order to respond to any oil spill that might occur from an offshore operation, industry has pooled its resources and established cooperatives at strategic locations. These cooperatives store and maintain spill response equipment so that it is available when needed by one of the member companies. There are cooperatives in the Gulf of Mexico, Alaska, and California to respond to the specific needs in each of those areas.

Unannounced Drill Program: In addition to annual training exercises and drills conducted by the offshore operators, we also have an active unannounced drill program. MMS will arrive at a platform and tell the company to carry out a drill as if they had a spill. MMS will tell them the size and location of the simulated spill. MMS then evaluates the company's ability to mobilize the equipment and implement the plan. When we find a deficiency int he company's ability to respond to a drill, MMS evaluates the need for a change the regulations or a change in a company's specific plan.

Inspection and Enforcement: In order to monitor response capability as described in the approved plan, MMS periodically inspects equipment and materials. MMS has a wide range of enforcement options, including warnings and component or facility shut-in, available to ensure compliance.

Training: Technology can only be used effectively by people who completely understand its applications. Personnel involved in offshore oil and gas operations are required to undergo appropriate training in their respective areas of responsibility. We believe this training is crucial, given the safety and environmental consequences an accident holds.

Oil Spill Research

MMS is researching ways to improve the capabilities for estimating likely trajectories of potential oil spills and their risks to sensitive environmental resources.

We have a number of large observational and modeling programs underway to characterize potential oil spill trajectories in the Gulf of Mexico and the Santa Barbara Channel offshore California.
This information quantitatively supports our environmental impact assessments, such as those dome in support of lease sales, or to support our analysis of oil spill contingency plans. In addition, the U.S. Coast Guard is also using the results of our trajectory modeling to help optimize tanker routing and locations of ship cargo lightering areas.

Slide 8 - Oil Spill Research

Since 1983, MMS has been funding research evaluating the efficacy and environmental effects of in-situ burning.

In 1985, in conjunction with Environment Canada, the American Petroleum Institute and the U.S. Coast Guard, we began the laser fluorosensor project. This detection technique allows the detection of detect oil on water, ice and the shoreline. The sensor is able to discriminate between false and apparent oil slicks and is able to locate oil on shorelines.

MMS participates in and helps to fund projects to: formulate and evaluate new dispersants, examine the fate of dispersants in water, and working to develop laboratory test procedures for evaluating dispersant effectiveness.

OHMSETT

MMS manages the Ohmsett facility, located in Leonardo, New Jersey. OHMSETT is used to evaluate mechanical oil recovery equipment, booms and skimmers, in simulated open ocean conditions. Participants include the U.S. Coast Guard and Environment Canada.

Ohmsett is available to both the public and private sector for the evaluation of oil spill response equipment such as booms, skimmers, temporary storage devices, remote sensing, in situ burning and oil characterization experiments.

VII. Emergency Plans of Each Caspian State

Emergency Plan
Republic of Azerbaijan
Agamahmud Siradjiev

Almaty Oil Spill Response Workshop

AZERBAIJAN OFF-SHORE OIL INDUSTRY OPERATORS ACTIVITIES

Introduction

- The Azerbaijan International Operating Company (AIOC) is an International Consortium producing oil offshore in Azerbaijan.
- SOCAR is the National company conducting oil production in the near shore shallow water areas.
- Three active Consortia operating who are primarily focussed on exploration activities. NAOC – CIPCO – BP SHAH DENIZ
- Other Operating Consortia are undertaking seismic surveys and will be conducting exploration drilling over the next several years:

  (Lead Companies include EXXON, MOBIL, BP/AMOCO, Chevron, Elf, LUKoil)

Emergency Response Committee

- Committee is an industry committee formed under the Health, Safety and Environment Forum.
- Membership from operating companies and other oil companies
- Focus is on oil industry activities offshore in Azerbaijan
- Purpose:
  - to provide a technical support
  - promote a coordinate approach on how to deal with emergencies

Present Operator Offshore Response Capabilities

- Oil Spill Response Services are contracted out to a private service provider
- Equipment and dedicated Oil Spill Response Team is available 24hr/day
- Stockpile of equipment is available in Baku
- Supply vessels assigned to the Platform, and the two Drilling rigs will be used to mobilize offshore response equipment during an emergency
- Arrangements in place to obtain additional equipment and people to assist in the event of a tier 3 spill incident.
- *Documentation*: Oil Spill Response Plan, Coastal Protection Manual, and Oil Spill Trajectory Models developed for existing operators.

On-Shore Activities

- Export Pipeline Operations have established detailed spill response procedures in the event of an oil spill
- Documentation includes Oil Spill Response Plan and Containment Manuals for the NREP and the WREPA operations which include details on:
- Location of all Block Valves
- Location of all River crossing
- Identification of suitable containment sites
- Identification of equipment and people needed to mobilize those sites

1st Oil Spill Response Cooperative Agreement

- Participants: AIOC – NAOC – CIPCO
  BP SHAH DENIZ - BMES
- Share operating costs to maintain Oil Spill Response Support Services
- Participate in deployment exercises
- Support other party in the event of an emergency
- Present term of Cooperative Agreement is for 1998/1999 Calendar Years

Point Forward

- Increasing operations in the Azerbaijan offshore sector will present new opportunities to share resources
- Must develop membership criteria for future Members to the Oil Spill Response Cooperative Agreement
- Must develop closer liaison and cooperation with Government Organizations in:
  - Spill Response training
  - Exercises
  - Response Planning Activities
- Develop a PanCaspian Response Mechanism

EMERGENCY RESPONSE COMMITTEE

- Emergency response committee is an industrial committee formed in the frames of Health Care, Safety and Environment Forum.
- Operating companies and other oil companies are members of the Committee
- The work is focused on offshore operations of the Azerbaijan oil industry
- Objectives:
  - technical assistance
  - provision with oversight approach to emergency management.

The first Cooperation Agreement on oil spills response

- Participants: AIOC - NAOC - CIPCO
  BP SHAH-DENIZ-BMES
- Allocation of operational expenses to support Supplementary services for oil spills response
- Participation in deployment exercises
- Assistance to other party under emergency
- Duration of Cooperation Agreement - 1998/1999

INTRODUCTION

- Azerbaijan International Operation Company (AIOC) - is an international consortium dealing with offshore oil production in Azerbaijan.
- GNKAR - national company dealing with shallow coastal oil production.
- NAOC - CIPCO - BP SHAH DENIZ - three consortiums focused on prospecting and exploratory activities.
- Other operational consortiums carry out seismic studies, and for the next few years run exploratory drilling works:

  (Leading companies are as follows: EXXON, MOBIL, BP/AMOCO, Chevron, Elf, LUKoil

Coastal activities

- Detailed oil spills procedures connected with export pipeline operations are developed
- The following documents are prepared: Oil spills response plan and SMET and ZMETA Oil spills localization guidelines, which describe the following:
- Location of check valves
- Location of river crossings
- Defining of relative localization sites
- Defining of equipment and personnel for mobilization of these sites

NEXT STEPS

- ◊ Enhancement of operations in Azerbaijan allows new possibilities for joint use of resources
- ◊ Participation criteria are to be developed for future members of Oil Spills Response Cooperation Agreement
- ◊ Establish closer contact and cooperation with government agencies directed to:
- Oil spills response training
- Exercises
- Response planning
- ◊ Development of Caspian emergency response mechanism

Capabilities of existing operational companies to respond maritime emergencies

- Oil spills response services contract is taken over to private company
- Oil spills response equipment and special group are to be prepared for 24 hours
- Equipment pool is in Baku
- Platform delivery boat and two drilling rigs will be used for mobilization of equipment to respond offshore emergencies.
- Measures to use additional equipment and personnel to help under 3-d tier emergencies are provided.
- Documentation: Oil spills response plan, Guidelines for coast protection and oil spills profile model are developed for existing operational companies.

Emergency Plan
Islamic Republic of Iran
Parvin Farshchi

ISLAMIC REPUBLIC OF IRAN

More complete knowledge of coastal and Ocean ecosystem is a prerequisite for more effective decision-making. Marine Science and technology leading to better science and scientific knowledge leading to improved technological development. In addition, marine science is an essential input into the decision making processes, for model building, prediction, for risk analysis and management, and for monitoring marine pollution.

If we want to optimize the utilization of living and non-living resources both in areas under national jurisdiction and in the international area, resource economics is of fundamental importance.

A brief graphic survey of marine resources and services is presented. The main economical benefit in the marine sector are through transportation fisheries and coastal tourism (now the largest industry in the world).

Maintaining harmony among which requires integration. An integrated management is required in the following areas:

- Fisheries and aquaculture
- minerals and metals
- shipping, ports and harbors
- coastal development and engineering
- tourism
- science and technology
- monitoring and surveillance
- development of human resources
- interaction of uses
- functionally between different uses and spatially, between different areas(Coastal, EEZ, high seas).

Each area must enhance efficiency in the economic system, safeguard the integrity of the ecosystem and promote equity, both intergenerational and intergenerational. Fisheries and aquaculture as well as the mineral and metals belong to the productive sector, comprising important service elements(research and development, training, environmental impact assessment, maintenance, recycling and waste disposal). Each depends on high technology, including information and data handling, and are interdisciplinary. Both the sector has to cope with uncertainty and rapid change and requires national/regional international legislation.

The report of the World commission on Environment and development state the general goal of sustainable development as:

> Meet the needs of the present without compromising the ability of future generations to meet their own needs; initiate a process of changes in which the exploitation of resources, the direction of investments, orientation of technological development, and institutional change are made consistent with future as well as present needs; and societies to meet human needs both by

increasing productive potential and by insuring equitable potential and opportunities for all. Ocean management should be considered as a methodology through which several activities (navigation, fishing, mineral exploration and exploration, mining, etc.) and environmental quality are considered as a whole, and their uses are optimized in order to maximize net benefit to a nation and/or region without prejudicing local socio-economic interests, or jeopardizing benefits to future generations.

In the Oceanic/coastal context integration has to be achieved:

- between nations
- among levels of government (national, sub national, local)
- among sectors (tourism, oil and gas, fisheries mining, etc.)
- between land and Oceanic sides of the coastal zone, and between disciplines (natural sciences, social sciences, engineering, etc.).

Although the oil spill response activities of the IR-Iran in regards to the Caspian sea area is very limited but the experience gained by the virtue of being one of the member state of the Regional Organization for the Protection of the Marine Environment (ROPME) for more than twenty years certainly has implications on effective cooperation in several area related environmental protection.

The experience gained in cooperation in the Persian Gulf could by all means be extended to the Caspian reparian states in all aspects of environmental protection general, and oil spill response, in particular.

The list of existing conventions and postlists relevant to environmental protection and oil spill responses to which IR-Iran is party is as follows:

Conventions:

- The process to become party to the protocol of 1978 relating to the International Convention for the Prevention of Pollution from ships, 1973 (Marpol Prot 78) is underway. The text has been sent to the government for their approval after which it will be submitted to the Parliament for ratification.
- The Islamic Republic of Iran is party to the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC 1990). It entered into force for Iran on May 25, 1998.
- The initial steps have been taken to accede to the protocol of 1992 to amend the International Convention on Civil Liability for Oil Pollution Damage, 1969 (CLC PROT 1992) and also to the protocol of 1992 to amend the International Convention on the establishment of an International Fund for Compensation for Oil Pollution Damage, 1971 (FUND PROT 1992).

National laws:

The basic piece of law that governs the issue of marine pollution is the "Act of Law relating to Protection of the Sea and Border International waters from Oil Pollution" which was adopted in February 1975. There has been efforts to prepare a set of amendments to this law. These amendments include, among other things, an increase in the amount of fines for pollution and they also widen the scope of application.

Current regulations, procedures, etc.:

- Polluting the internal waters, territorial waters, and border rivers is forbidden and those ships, installations or persons who pollute these areas are liable for their actions.
- The penalties are in the for of fines (in cases of non-intentional pollution) and imprisonment (for deliberate pollution).
- This applies to ships as well as drilling rigs, platforms, artificial islands (fixed or no-fixed), and oil storage tanks whether at sea or on land.
- Those who observe any discharge of oil or the presence of oil at sea are required, based on OPRC Convention, to notify the case to the nearest coast radio station.
- Local (post) contingency plans are in the process of being reviewed and out of these local plans, the national contingency plan will be prepared.
- According to 1967 Act, the Ports and Shipping Organization is responsible for emergency response to oil pollution incidents in the marine environment. Other government agencies (e.g. Ministry of Oil, Navy, Department of Environment, Ministry of Interior etc.) are required to fully cooperate with the Ports and Shipping Organization in performing its responsibilities in this regard.
- Training is needed in all levels of response organization, from those coordinating the response to those fighting the pollution at site.
- During the past years, some equipment has been purchased by the Ports and Shipping Organization to deal with oil pollution incidents. A minimum of equipment has been allocated for each major commercial port (four ports in the south and two ports on the Caspian Sea coast). It is planned that more will be distributed among these ports in proportion to their shipping traffic and risk of oil pollution incidents. Apart from items of equipment, special teams have been established and some training has been done.
- In accordance with Article 9 of the 1967 Law, the Ports and Shipping Organization has the authority to require oil companies engaged in exploration, exploitation and transportation of oil in Iranian territorial waters or offshore areas, to have the necessary reception facilities, emergency response plans, and equipment to deal with oil pollution incidents.
- Occasional drills are conducted to keep the personnel and equipment ready. The most recent one was conducted in Anzali Port in September 1998. Up to now, these drills have been conducted only by the Ports and Shipping Organization without participation of oil companies.
- Work on preparing the baseline data and risk assessment along the coastal zone and the marine environment is underway.

The crude oil may be transported by pipelines to the main land or by carriers for exportation. These pipelines are resting on a foundations resting on the bottom of the sea which is under the effect of marine processes (currents, waves and sea level fluctuations) which might cause a direct break or erosion in the foundations on which the pipelines resting and causes a break in these pipelines and spill of crude oil to the surface water of the southern Caspian Sea.

Due to the dominant density current circulation in the southern Caspian we would expect that the oil slicks will head toward the Iranian water in addition to the effect of the wind in the area.

Based on the Climatological data the dominant winds in the south Caspian usually Northerly, Northwesterly or Northeasterly which make another favorable factor for the oil slicks to head toward the Iranian water.

We believe that Reception Facilities and part state control are two inseparable component of the oil spill prevention and it is always preferred to prevent an oil spill.

Reception Facilities
Feasibility study on the regional requirements for the establishment of reception facilities could be designed in two phases.

First phase
- Collection and analysis of information from Caspian bilateral states (e.g. port and ship characteristics, traffic pattern, type and amount of ship generated wastes, existing reception facilities and their characteristics, present local requirements/procedures for waste management, etc.)
- Collection and analysis of information from regional/international organizations.
- Determination of capacity for regional reception facilities (i.e. design, cost and location)
- Report of the 1st phase of feasibility study.

Second phase
- Updating of existing reception facilities
- Determination of capacity of planned national reception facilities of Caspian states (i.e. design, cost, etc.), that will collectively meet the regional requirements for an adequate reception facility arrangement.
- Economic analysis of the regional facilities in the region
- Identification of organizational aspects of management of ship generated wastes, including legal provisions and the port state control procedures.
- Preparation of a plan implementation
- Preparation of the report of the feasibility study.

The requirements for establishing an effective "Port State Control" System:
- Introduction to National Port State Control
- The main components of port state control and its procedures
- Ship's statutory certificates relating to safety and environment protection
- Legal requirements
- Port state control personnel requirements (number & qualifications)
- Communication requirements
- Port charges
- Recommended structure of Marine administration
- Cooperating with neighboring port states towards more effective regional arrangements
- Present port state control memoranda
- Cooperating with other port state control areas.

A rapid survey of the existing Caspian Ports situation revels that following issues are to be considered:

- There is general lack of inspection of vessels at the departure/arrival ports as well as the loading terminals.
- There is need for checking the Safe Manning Standards.
- The need for closer communications among the ports within the Caspian sea area.
- The importance of expediting an agreement on a port state control procedure for the region.

Possessing a standardized national contingency plan model for the entire Region is the optimum situation to ensure smooth integration of joint response efforts. But in prevailing situation that Caspian littoral states are just beginning the national contingency planning process, assistance through CEP would result in the development of a common approach among these nations. Initially, CEP could help:

- Assist in the development and/or modification of the National contingency plans of Caspian states to promote the design of five distinct contingency plans that can be smoothly integrated into a single comprehensive regional pollution response capability for marine environmental emergencies of regional significance within the Caspian sea area.
- Develop model language for Caspian littoral state legislation.

The effectiveness of any National contingency plan largely dependent on properly designed lower level contingency plans for industrial location, port areas, or large sub-divisions of coastline the proper development of these lower level contingency plans ensures that in the cases of spills of national significance all of the resources of the nation can be effectively brought to protect the national resources at risk.

Measures Related to Legislative or Policy Actions and Natural Contingency Planning

Identification of national environmental policies rules and regulations, institutional arrangement, implementation and monitoring mechanisms and management procedures.

- Establishment of reporting procedures.
- Directory of national expects.
- Defining responsibilities assigned to concerned national agencies and key persons.
- Environmental impact surrey and risk assignment requirements and procedures included.
- Identification of risks areas.
- Identification of means through which bilateral/multilateral agreements could be established.
- Joint response (Gov't and polluter).
- Define clearly.
- Polluter pays in national law and regulation.
- Identification of means through which damage assessment and compensation proceedings could take place.
- Impose incorporate within appropriate policy or guidelines to oblige on the part of all citizens of the country witness to report any all incidents.
- Ensure readily available financing for response actions.

Designation of a panel consisting of experts and government official who will have authority to agree to new provisions to be included in national contingency plan.

- Incorporate in the N.C.P. provisions for the ultimate disposal of recovered pollutants and contaminated materials.
- Establish command structure.
- Ensure that provisions exist for the response command structure.
- Ensure communication with high efficiency.
- Establish an obligation to integrate the NCP within those of other states in the Caspian sea areas.
- Incorporate within NCP clear specifications for assistance (given or taken) from response other Caspian states. If a regional co-operative response seems to be far away, encourage bilateral/multilateral agreements.

Identification of non-governmental organizations national/international who could take part in response activities or mobilization of fund.

- Incorporate within NCP response procedures and dispersing use in general and in the ecologically sensitive areas in particular.
- Development of clear definitions and a glossary of terms.
- Incorporate provisions within NCP to utilize standard message formats and reporting procedures.
- Incorporate regulations law or guideline on surveillance, joint exercises.
- Establish agreements with oil companies on an environmental tax to be paid by oil companies.

Slide 1

Republic of Kazakhstan

System for Caspian Region Oil Spills Emergency Prevention and Liquidation in Kazakhstan

the Emergency Committee of the Republic of Kazakhstan

Vakhit Keremkulov
December, 1998

Slide 2

Chrohological information

- In former Soviet Union, the responsibility for notification and liquidation of large oil spills was put on the Ministry of Oil Industry, Ministry of Gas Industry, Ministry of Oil and Chemical Industry, Ministry of Geology, production enterprises of these ministries, which had specialized rescue and anti-gusher services.
- In December 1990, the Emergency Commission was established according to the decree of Council of Ministers of Kazakh SSR. In August 1991, the Regulation on Emergency Commission was adopted.
- In 1993, the State Emergency Commission was established by the Government of the Republic of Kazakhstan.
- In 1995, the Commission was transformed into the State Emergency Committee (SEC).
- In 1996, the responsibilities of the Committee for inspection on secure work and mining inspection were given to the State Emergency Committee of the Republic of Kazakhstan.
- In 1997, the SEC was transformed into the Emergency Committee of the Republic of Kazakhstan. The State Anti-Fire Service became a part of the Emergency Committee of the Republic of Kazakhstan (ECRK).
- The Republic of Kazakhstan worked out a long-term programme on prevention and actions in emergency situations (Regulation #1081 of 1997).
- In 1997, the Government of the Republic of Kazakhstan issued Decree #1298 "On State System of Prevention and Liquidation of Emergency Situations".
- The functions of management of the State system of emergency prevention and liquidation were put on the ECRK.

- The ECRK incorporates the system of Civil Defense and relevant military troops, the State Anti-Fire Services, the State authorities in charge of emergency, industry safety and mining inspection, State Protection against natural calamities (Kazselezashita and Tsentrspasbod) and regional authorities.

Slide 3

Share of responsibilities

- Requirement for security provisions for explosion- and fire-dangerous units are stipulated by laws, degrees of the President and the Government, other legal regulations and technical documentation of the Republic of Kazakhstan.
- In accordance with its responsibilities, the Emergency Committee of the Republic of Kazakhstan conduct direct management in prevention and liquidation of regional and global emergency situations of natural and processing character.
- In accordance with government decree # 1298, development and performance of the actions approved by the Emergency Committee and aimed to prevent and liquidate the subsequences of accidents and catastrophes are put on the Ministry of Energy, Industry and Trade, Ministry of Transport and Communications, Ministry of Ecology and Natural Resources, Ministry of Defense, Ministry of Internal Affairs, and Ministry of Agriculture.
- In accordance with the law, the local representatives and executive bodies establish regional emergency commissions and are responsible for prevention and liquidation of emergency situations on relevant territories and units.

Slide 4

Authorities of the Emergency Committee of the Republic of Kazakhstan

- Coordinates activity of ministries, state committees, local executive bodies and scientific institutions in the region of prevention and liquidation of emergency situations of natural and processing character.
- Submits for consideration of the Government of the Republic of Kazakhstan the state reports on measures of protection of population, environment and economy against emergency situations.
- Manages the Civil Defense forces in actions on emergency prevention and liquidation.
- Conducts direct management in liquidation of regional and global emergency situations.
- Mobilizes material and technical resources of organizations, irrespective of their forms of ownership and departmental belonging, on liquidation of emergency situations.
- Coordinates the activity of rescue services and divisions.
- The last example of participation of such services is the accidental gusher on the Tengiz-37 well in 1985, when it took 14 months to liquidate the accident.

Situation on mining of oil and gas potential on the North Caspian Sea shelf

- By the decision of the Cabinet of Ministers of Kazakh SSR, decree #252 as of 30 April, 1974, the North Caspian Sea was declared as a protected area. Following this decision, it was forbidden to mine mineral resources at off-shore, and no programs on preventive measures and fighting against oil spills were developed.
- After Day of Independence of Kazakhstan, the Government adopted a decision on performance of oil operations in internal water area and on Caspian Sea in Kazakhstan.
- By decision of the Cabinet of Ministers of the Republic of Kazakhstan, decree #936 as of 23 September 1993, the following amendment was in introduced into the previous decree: "e" production of geophysical investigations, geological exploration and mining of hydro-carbon raw materials with taking into account ecological conditions".
- In 1993, the new company – "Kazakhstancaspishelf" (KCS) was established.
- In 3 December, 1993, the new International consortium on Caspian Sea was established. It comprises the KCS as an operator and Agip, British Gas, Mobil, BP/Statoil, Total, Shell.
- In accordance with the Agreement on Production Sharing that was signed in November 1997 between the Government of the Republic of Kazakhstan and foreign oil companies, the new operating company was established, which became responsible for boring on the Caspian Sea shelf.

Situation with prevention of oil spills on the sea

- In accordance with the Law "On Emergency Situations of Natural and Processing Character", organizations, irrespective of their forms of ownership and departmental belonging, are obliged: to plan and conduct measures for increasing the stability of their functioning and employees' and population's security; conduct protecting measures, rescue, restoring and other urgent work for liquidation of emergency situations on departmental units and territories as the plans set.
- Oil companies are required to develop their own plans and actions in responding on oil spills and adopt them with inspecting authorities of Kazakhstan.
- Oil companies are responsible for prevention of spills, their quick liquidation, if it happens, softening their negative effect on environment, compensation of damage caused to nature and population.
- The companies, which provide oil transportation and have relevant licenses given by the state authorities, are responsible for any oil spills during oil transportation.

Slide 7

The main problems in responding to emergency of oil spills on sea

- No developed plans of actions of the Operating Company in case of open oil and gas gushers and other accidents.
- The Consortium of Oil Companies do not completely solved organizational, financial, technical problems in case of oil spills.
- No plans of use of equipment, facilities and specialists of foreign firms as well as use of assistance of other countries in fighting against oil spills and it evaluation.
- No regional services of prompt respond in case of emergency situations on sea that are provided with special facilities, boats, and other equipment.
- The existing legislation does not completely regulate:

✓ Actions of oil companies, central and local executive bodies, other departments and organizations in case of oil spills;

✓ Liabilities of parties, which are required to provide accident-free functioning of oil wells on sea;

✓ Joint actions and collaboration of states and companies in case of cross-boundary oil spills;

✓ Procedures of operating notification of the Government and other neighbor countries;

✓ Principles of quick custom control of emergency equipment that is crossing the boundaries of the Caspian Sea states;

✓ Responsibility of companies for the expenses on cleaning and compensation of damage.

Slide 8

Recommendation on improvement of the situation

1. Conclusion of two-party agreements or multilateral agreements between the Caspian Sea states on increasing the efficiency of collaboration in case of emergency caused by oil spills on Caspian Sea. Establishment of regional cooperation between state bodies on emergency prevention and liquidation.
2. Development of efficient mechanisms of mutual assistance in urgent mobilization of emergency equipment for liquidation of spills.
3. Development of general principles of control and production monitoring of sea oil operations, prevention and liquidation of oil spills, evaluation of background and effect on environment.
4. Definition of responsibilities, including financial one, at liquidation of spills, between competent sate bodies and oil companies.
5. Development of the National Plan of emergency respond in case of conducting of oil operations on sea.

- The National Plan should include probability risks in case of conducting of oil operations on sea, role and responsibilities of the Government, state authorities and companies, at each step of development and liquidation of emergency situations.
- The National Plan should reflect:

✓ The most vulnerable off-shore areas of Caspian Sea, that should be protected in first turn at oil spills;

✓ Acceptable criteria of use of dispersents;

✓ Responsible persons in the Government and state authorities for coordination of work of companies in case of oil spills;

✓ Items for personnel training at competent state bodies to the methods of prevention and liquidation of oil spills on sea.

6. Requirement of establishment of specialized rescue services for prompt responding to oil spills at North Caspian Sea.

Slide #1

Historical background

- Kazakhstan is in the list of the old oil producing countries. The oil fields development began in the late 90s of the last century. For this period the onland oil fields were mainly operated in the Northern and Eastern consist of the Caspian Sea.

- A first well in the Caspian region was historically drilled in 1871 in Baku. In Kazakhstan a first well was drilled in 1899 in the Karashunghil field Zhalyiok region Atyrau oblast.

- 60s-80s of the second millennium could be considered as a launching period for offshore oil operations in the North-East of the Caspian sea, when first seismic surveys and drilling operations have been conducted by azerbaijanian and Russian enterprises in Kazakhstan. Several perspective objects were discovered, in two of them (Skalistoe sea and Rakushechnoe sea) oil and gas have been discharged. However they were not widely operated.

Slide # 2

Status of the North of the Caspian sea

- In 1974 the North on the Caspian sea was declared a reservation zone (Resolution #252 of the Council of Ministries of Kazakhstan of April 30, 1974) which set forth the development of fishery and water transport.

- After independence the Kazakhstan government made a decision on oil operations to be performed. In connection with this fact after issue a Resolution (#488, June 9, 1993) with the Cabinet of Ministries of Kazakhstan "On assessment acceleration of the oil & gas presence and operation of the Caspian region in Kazakhstan" it was necessary to support this decision with relative regulatory acts, that was implemented in the followed resolutions of the Cabinet of Ministries. One of the resolutions #936 of 23.09.93 "On geophysical researches" point 3 sets forth that point 5 of "Principles of reservation zone of the North of the Caspian sea" approved with above mentioned resolution #252 is amended with subpoint "d" stipulating that together with other activities in reservation zone it is permitted "to conduct geophysical researches, geological exploration and production of hydrocarbons including specific environmental conditions".

- A current status of the national reservation zone in the North of the Caspian sea is set by Article 48 of a Law of the Republic of Kazakhstan "On especially protected natural zones", 1997. Pursuant to this Article capabilities for the development of the fishery, water transport, national geological research, exploration and production of hydrocarbons including special environment features are provided in the reservation zone.

Slide # 3

Geological studies of the North of the Caspian

- In 1993 a "KazakhstanCaspianShelf" company was established for realization of provisions of the resolution of the Cabinet of Ministries, which entered as operator in the Caspian international consortium with the largest multinational companies "Agip", "British Petroleum" in alliance with "Statoil", "British Gas", "Mobil", "Shell" and "Total".

- For 1994-1996 a large scale seismic program was conducted - more than 26,000 km of 2D seismic profiles surveyed on 100,000 km2 area proved the prospects of oil and gas discovery in the bottom of the Caspian sea. Along with the subsalt domes of the Astrakhan and Tengiz zones large Mesozoic structures were identified in the sequential part of the Buzazhinsk dome, Gornyi Mangyshlak and South-Mangyshlak sag. Some of the identified elevations lie adjacent to developing onland fields. All these factors tell about good geological conditions for establishment of big source of raw materials for development of the oil and gas industry in the nearest future.

- A map of blocks of geological studies, exploration and recovery of hydrocarbons was developed and approved. An agreement with members of the ex-consortium for exploratory drilling and field development was initiated to explore the first blocks.

Slide # 4

Oil operations prospects

Development prospects of offshore oil operations in Kazakhstan are based on the following principles:

- Oil and gas forecast reserves on the North-eastern Caspian shelf are about 10 bln tons and 2,000 bcm;
- First steps of oil operations will be in the northern part of the Caspian sea;
- Exploratory drilling will start in 1998-1999;
- The first sea oil will be recovered in 2004;
- Maximal oil recovery is anticipated in 2014 (60 mln tons), and recovery level will be increased in the future.

Slide # 5

Ecological requirements for oil operations in the Caspian region

- Resolution of the Cabinet of Ministries of December 3, 1993 "On establishment of International Consortium for assessment of the Caspian oil and gas potential in Kazakhstan" (point 5) it is set forth for Ministry of Energy and Fuel with Ministry of Ecology and Biological Resources, Kazakhstan National Academy of Sciences to submit to the Cabinet of Ministries drafts of legislative and regulatory acts regulating the performance of geologic exploratory activities in northern part which is reservations zone of the Caspian sea.

- In compliance with mentioned resolution "Specific ecological conditions for Caspian geophysical studies in Kazakhstan" have been prepared by academic scientists approved with the Ministry of Ecology and Biological Resources on January 2, 1995.

- Specific ecological conditions with other instructions and regulatory instruments were considered as basis for further activities for companies and agencies monitoring the Caspian environment.

- The State Ecological Expertise and state monitoring agencies of the Ministry of Ecology and Natural Resources including scientific and ecological public institutions tracked intently the steps of the Caspian International Consortium, which completed seismic survey works in Kazakhstan in 1996. There was a detailed environmental assessment of each step under constructive cooperation of Consortium and its Kazakhstan operator JSC "Kazakhstancaspianshelf", and it is possible to assure that the first step of oil operations didn't have negative impact when maritime and coastal ecosystems are functioned.

Slide # 6

Environmental assessment

- Based on EIA (Environmental Impact Assessment) ecological expertise is one of the more effective instruments of balanced approach to highly complex national economic mechanism functioning problems for transition to the market. Just under these procedures discrepancies and contradictions in decisions to be made leading to substantial and irretrievable results for environment which could be a heavy burden for future generations, thus violating major principles of stable development.
- In compliance with law "Environment protection" and "On ecological expertise" the ecological expertise in Kazakhstan is carried out in two forms - state ecological expertise and public ecological expertise, and the last one plays its main role when environment impact assessment implemented.
- In compliance with accepted concept all pre-planned, planned, pre-design and design documentation shall assessed at state ecological expertise. Any economic activity could be implemented after positive conclusion and permission for use of natural resources based on the conclusion. Danger to environment and hazard to health is defined during assessment of the impact of expected economic activity on the environment (OVOS).

Slide #7

Ecological expertise of exploratory drilling project

- Purpose of the project: exploratory drilling of perspective oil and gas containing profiles discovered due to geophysical studies in the North of the Caspian sea.
- All drilling objects are located in north-eastern part of shallow (from 1.8m to 10 m depth) waters of the Caspian sea within reservation zone. It is designed to drill 6 exploratory wells (Eastern Kashagan, Western Kashagan, Aktoty, Kairan, Kalamkas-A and South-Western Kashagan).
- Different types of emergencies are considered in the project including major (more than 50 tons) and small spills. Hydrocarbons spills have the most hazard impact on the environment.
- The probability of emergency deep well blow out is 1 for 161 wells (from results of oil explorations in Mexican gulf including high risk of the well blow out under high pressure and temperature).
- Probable oil spills emergency scenarios are modeled in the project.
- Types and levels of environmental impact of oil spills are described: air, sea water, plankton, benthos, littoral vegetation, birds, fishery, seals.
- Data mentioned indicate a serious hazard which the Caspian, particularly ecologically sensitive North Caspian, is exposed to when oil spilled.

Slide # 9

Proposals on oil spills prevention

Taking into account that reservation zone of the North Caspian is unique and highly sensitive, and Kazakhstan is responsible for preservation of ecosystem the following is to be carried out:

- Develop a national plan oil spills recovery when offshore oil operations held.
- Create specialized teams fully equipped and staffed.
- Develop legislative and regulatory instruments and procedures providing clear functioning of fast mobilization of emergency rescue teams and assigning of responsibilities within national jurisdiction, and transboundary oil spills.
- Establish notification procedures, customs clearance of response equipment and people.

Needs for establishment of specialized emergency teams in Kazakhstan are based on the following:

- Kazakhstan has the longer border with Caspian countries.
- The northern Caspian with its unique sturgeon reserves is an international importance and all countries are responsible for preservation of biodiversity.

Measures listed above for oil spills prevention and response systems are essential, and Kazakhstan counts on assistance from World Bank, Global Ecological Fund, PRUNO, other international organizations to establish reliable oil spills response system.

Slide # 9

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Overmurat Berdeyev

Turkmenistan

Information on blowout safety under the oil field development in the Caspian shelf

In present time the development and operation of oil fields of the Caspian continental shelf are conducted with domestic and foreign oil companies on the Caspian coastal zone in Turkmenistan.

The ongoing increase in oil productivity will have high deformative environmental impact. It is very important thereby to make current analysis and assessment and to envisage all possible negative impact of oil production, refining and transportation.

A "Larmag-Cheleken" joint venture referring to a contract of 23.01.93 awarded with "Turkmenneft" was entitled for drilling works and development of fields Lam and Zhdanov located in the south-western Caspian shelf in Turkmenistan. A set of works on hydrocarbons recovery from contract area for domestic and foreign market consumers is a subject to, activity and objective of the JV.

"Larmag-Chekelen" took over from oil and gas producing company (NGDU) "Chelekenneft" 49 well stock, 47 of this stock is producing well stock (25 wells with intercasing flow, and 3 are suspended wells). This well stock is located on 23 operating offshore fixed platform, and their technical conditions don't match to safety standards, as none of the wells was equipped with intrawell safety valves and well-head safety valves.

1. In present time the operating well stock of the Zhdanov field is 24 wells, 12 of them are production wells (oil and gas), the rest 12 wells shut down (high rate of water enroachment, lack of stanpipes, breaks on the line, etc.). Also it is necessary to say that there is a lack of monitor wells (observation holes, piestic wells), and 5 wells are operated with intercasing pressure 21-255 atmospheres, 3 wells are under conservation (##42, 63, 81in the "Zhdanov" field).

The operating well stock of the "Lam" field is 28 wells, 16 are oil and gas producing, the rest are shut down due to different reasons. There are no monitor wells, and 11 wells are operated with intercasing pressure 27-170 atmosphere. There is no decision on well abandonment located in deposit (MSP)# 70 of the "Lam" field (wells ##70,71,72,73,74).

Total oil and gas recovery was:

1994 - oil 340,280 tons	gas - 261 bcm
1995 - oil 397, 960 tons	gas - 250 bcm
1996 - oil 263,250 tons	gas - 254.143 bcm
1997 (9 months) - oil 313,127 tons	gas - 320.39 bcm

1998 (expected) - oil 500,000 tons gas - 300,000 m3

This joint venture run the works on intercasing flow abandonment in 13 wells. As of may 1998 the "Larmag-Cheleken" refurbished 14 wells including 8 wells with intercasing pressure. As a result of these activities oil recovery was increased - 156.4 tons/day.

To comply technical conditions of platforms and wells with safety standards, rules and instuctions the "Larmag-Cheleken" with an insurance company EMCA prepared recovery work program which costs $3.5 mln.

In 1994 10 people from local personnel have been trained on blowout safety in Auberdin (GB). The rest of the personnel were not trained. Now the work on establishing an emergency - rescue service like DGSD and DPD in the joint venture is organized. In 1996 "Larmag-Cheleken" entered into a contract with american antiblowout service for the running of abandonment works (oil spouters). There is no blowout safety prevention by specialized services (independent). Small joint ventures are not equipped with fire-fighting equipments and facilities, rescue facilities for $500,000. The JV is negotiating with foreign companies working in Baku on services in case of oil spills.

Wells are workovered with leased subsurface facility "Sundowner-VI" (USA). The workover well unit "Sundowner-VI" preventer under pressure 700 atm. is used (PUG - 350 atm.). The preventer consists of universal preventer GK-5000, double-ram preventer, throttling and killing female cross-member, shear ram blowout preventer. PVO is certified corresponding to API standards. Before installing preventers in the well-head they are to be pressure tested on the pressure test piers (each element separately). After installation at the well-head each PVO element is pressure tested separately and with flow lines. Preventers and adjustable chokes can be maintained both from the main and supplementary panels. However, these results were not registered as it is required by existing standards. Before wells workover a working program is to be prepared agreed with State inspection of Balkhan velayat. According to specifications of different types of Christmas trees, tubing hangers and sets of tubings "Larmag-Cheleken" developed well killing procedures, Christmas tree dismantling, installation and pressure testing of preventers. However, the documentation is not agreed with the Turkmenian antiblowout service. It is prescribed to have two (minimum) barriers in any stage of well works. Utilization of an interim plug of Halliburton allows to create the second (after drilling mud) barrier in the well with open perforated zone.

Every round trip operation is monitored by filling RTO registration paper. Volumes of injected and forced out fluids are controlled through filling vessels equipped with electric and mechanical level gage. In compliance with Instructions for perforated intervals to be isolated a cement bridging plug should be placed above interval and pressed for cement loss providing 20-meter sleeve above and below the interval. To define the quality of the cement bridging plug the flow string is pressed by two ways: switching to water and pressure injection prescribed in the original well drilling project.

When workover wells are tested/operated an old Christmas tree is changed with western CT produced by FMC with working pressure 700 atm. As to well with intercasing pressure studies for reasons of these pressures shall be conducted. For example, well 50/50 of the Zhdanov field a rubber seal (packer) was changed in the upper part of liner part. But the most likely reason for intercasing pressure is a slight gas leakage from casing string annulus into casing through thread joints of the flow string. For elimination of the profile pressures impact on flow string a packer for insulation of the casing string annulus from perforated intervals is included in the testing/operation assembly. A computerized overtoning with screwing moment monitoring provides the tightness of cross thread joints of tubing and other elements of the testing/operation assembly. To expand the flow string life inhibited fluids for casing annulus corrosion protection is injected simultaneously. A subsurface safety valve installed at 130 m below the casing head and monitored from the surface is included in the testing/operation assembly. When the assembly is launched and packer is installed the casing and tubing annuli (of the flow string) are pressure tested. Thus both tightness of the casing and tubing annuli and quality of the packer installation are checked. After well workover is finished for a moment of the Sandower-VI running the subsurface safety valve is locked, and a back pressure valve is installed in the Christmas tree. Then the well is operated only after Sandower-VI running is completed.

The workover personnel is trained how to fight with gas blowouts in the field, and they are certified from the US special training centers. Once a fortnight table top exercises held on all types of alert, including "Blowout" signal, however, the necessary documents are to be filled according to Turkmenian requirements.

Drilling. Preparations for drilling of the suspended well #60/63 in the Zhdanov field are carried out. According to requirements existing in Turkmenistan and worldwide the following preventors are used: preventor PUG 350*350/2 x PPG 350*350/ double PPG 350*700/ single x PPG 350*700 shear rum preventer. The mentioned blowout preventers allow to drill the wells with the designed depth. Preventers are to be procured with main and supplementary monitoring panels, throtling and killing blocks, remote adjustable choke, etc.

Calculation of parameters of casing strings in the first well drilling project is to be changed. In view of the requirements became more rigorous these changes should be related to the string reinforcement.

At the wells workover it is designed to change the FMC X-tree central valves with Hyberson pilot valve. The safety valve monitoring systsem is connected with the pilot valve that allows to shut-off tubing annulus at the point 130 m under the excessive well-head pressure increase (e.g. product line plug) or reduction (e.g. leakage).

16 wells with intercasing pressure are inder consern. As to results due to selection of optimal operation conditions intercasing pressure fell or stabilized. Interstring pressures over 100 bars are within the limits low enough for break of casing strings. It is necessary to reduce a well operation risk with intercasing annulus pressure.

According to inspection held in 21-23.10. 1998 documents on the Zhdanov and Lam fields development were not submitted to the Turkmenistan head state inspection, and there was no monitoring of the field development and chosen wells that matched the requirements for oil and gas fields development. Actually there was no activity for oil, gas and water flows and uncontrolled blowouts prevention involving specialized services.

It should be noted that there is a revival of preparation works providing emploees' safety run with the JV labor department, but at the same time a decision on issues of equipping the OFP with clean up and rescue facilities, and establishing an emergency rescue service was not made. There were casess when necessary information was not submitted to the state inspection bodies by the JV, which means a violation of the law "Labour protection" (Art. 15).

The offshor pier is deteriorated (the oil and gas production department "Chelekenneft"), and well abandonment issues served from this pier are not solved so far.

For purposes of prevention of accidents and injuries and law enforcement "On natural resoursed" and "Labor protection" there was an order to the "Larmag-Cheleken" managers, where the following was set:

1. To complete and properly deal with documentation for oil field development to the end of the year.

2. To run mandatory studies and measurements to control over the well stock development of the Zhdanov and Lam deposits.

3. To arrange the workover works for elimination of intercasing pressures according to the schedule and work plans agreed with representatives of the state inspection bodies.

4. To organize preventive works for prevention of the oil, gas and water flows, uncontrolled blowouts and emergencies matching with instructions approved with the Turkmenian state inspection on 10.08.97.

5. To solve the point of prolongation of offshore fixed platforms erected 20 years ago.

6. To provide all OFP with collective and individual clean up and rescue facilities for protection of employees.

Top managers of state inspection on labor safety and Balkan velayat involving specialists from the Ministry of Oil and Gas and concern "Turkmenneft" are to inspect the "Larmag-Cheleken" JV on protection of natural resources in the first half of the year.

A company "Pertronoil Charigali" proceeded to prospecting and exploratory works on the contract ares (block-I) in Turkmenistan. Guidelines were developed for oil spills

clean up under coastal exploratory drilling works to provide with immediate and efficient oil spills response. ...

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ОГЛАВЛЕНИЕ

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а) Обзор принятых в США мер реагирования и планирования действий в непредвиденных ситуациях.....Ричард Мут*

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а) Планы действий в чрезвычайных ситуациях в прикаспийского государствах:

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i. Письмо-обращение премьер-министра к участникам семинара
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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ПРЕМЬЕР-МИНИСТРІ

№ 12-21488 «03» декабря 1998 жыл

Участникам международного семинара «Нефтяные разливы и предотвращение аварий, готовность к реагированию»

Уважаемые участники международного семинара!

С глубоким удовлетворением рад приветствовать Вас – представителей правительственных органов Азербайджанской Республики, Исламской Республики Иран, Российской Федерации, Республики Туркменистан и Республики Казахстан, а также Всемирного Банка, международных организаций, нефтяных компаний, экспертов и ученых в области нефтяной экологии, охраны окружающей среды, рыбного хозяйства в Алматы и пожелать успехов в работе международного семинара.

Представительный круг участников нашей встречи, собравшихся для обсуждения и принятия конкретных рекомендаций по сохранению уникальной экосистемы крупнейшего в мире замкнутого водоема – Каспийского моря - при намечаемом крупномасштабном развороте работ по разведке, добыче и транспортировке углеводородного сырья еще раз подтверждает стремление прикаспийских государств к более тесному и долгосрочному сотрудничеству.

Повестка дня семинара, выбранная тема для обсуждения – предупреждение и реагирование на возможные разливы нефти на Каспийском море – весьма своевременна и актуальна, предусматривающая объединение наших усилий в направлении координации и осуществлении национальных планов действий по защите экосистемы Каспия, разработке превентивных мер по

001010

недопущению аварий при бурении скважин, эксплуатации нефтяных месторождений, магистральных и внутрипромысловых нефтепроводов, танкерной перевозки нефти.

Высокий уровень профессионализма участников семинара позволяет выразить уверенность, что в ходе Вашей работы будет произведен широкий обмен мнениями по действующим процедурам, программам и методам реагирования в аварийных ситуациях.

Было бы крайне важно добиться повышения роли и ответственности правительственных органов, нефтяных компаний в улучшении процессов планирования, координации и технической компетенции в этом вопросе.

Могу с уверенностью сказать, что рекомендации семинара будут иметь большое практическое значение для всех стран прикаспийского региона и, в частности для Казахстана, приступающего к бурению первых разведочных скважин на нефть и газ на море.

Совершенно очевидно, что согласование экологических параметров хозяйственной деятельности, внедрение новых экологических стандартов, норм и правил потребует огромных усилий со стороны наших стран, в том числе по разработке мероприятий по предупреждению чрезвычайных ситуаций.

Реальные шаги на пути к этому мы видим на примере международной Каспийской экологической программы, одобренной всеми нашими странами. Свидетельством приверженности природоохранным идеям должен стать и данный международный семинар.

Желаю Вам успешной работы и плодотворного сотрудничества во имя благородной цели – сохранения уникальной экосистемы нашего общего Каспийского моря.

Нурлан Балгимбаев

СООБЩЕНИЕ ДЛЯ ПРЕССЫ

Семинар по проблемам профилактики разливов нефти, готовности к чрезвычайным ситуациям и методов реагирования в регионах Каспийского моря
10-12 декабря 1998
Алматы, Казахстан

В Республике Казахстан проводится трехдневный семинар по проблемам профилактики разливов нефти, предупреждения чрезвычайных ситуаций и готовности к ним и методов реагирования в Каспийском регионе в рамках Программы по Охране Окружающей Среды Каспия.

В семинаре участвуют представители пяти Прикаспийских государств (Азербайджан, Иран, Казахстан, Россия и Туркменистан), международные и национальные нефтяные компании и консорциумы, международные организации (Международная Морская Организация, Международная Ассоциация Нефтяной Промышленности по Защите Окружающей Среды, Международный Нефтяной Форум Собственников Танкеров), эксперты и специалисты по научным исследованиям по Каспию, правовым и техническим вопросам, а также неправительственные организации, занимающиеся проблемами охраны окружающей среды.

На семинаре будут рассматриваться текущие программы по реагированию на чрезвычайные ситуации в Прикаспийских государствах для более эффективного распределения роли, обязанностей и обязательств при чрезвычайных ситуациях. Что касается предпринимаемых мер, то основное внимание будет уделяться на улучшение регуляторных систем, ход работ при чрезвычайных ситуациях, программы обучения, средства связи, и общее руководство.

Задачи семинара:

- Более полное понимание роли и обязанностей правительств прикаспийских стран и нефтяных компаний в случае аварии, и решения, принимаемые каждой страной при чрезвычайной ситуации.
- Сравнение опыта нескольких стран и нефтяных компаний по борьбе с нефтяными разливами.
- Поделиться новейшей технической информацией для улучшения процессов планирования, технической компетенции и осведомленности о всех решениях, принимаемых при инциденте.
- Создавать условия для обмена информацией по текущим процессам, программам и мерам реагирования на чрезвычайные ситуации со стороны компаний и других правительств.
- Разработка дальнейших рекомендаций для усовершенствования программ оп реагированию в чрезвычайных ситуациях Прикаспийских государств.

Семинар проводится при поддержке со стороны Всемирного Банка, Агенства США по Международному Развитию (USAID), Европейского Союза - ТАСИС (TACIS), Казахстанской Международной Компанией по Офшорным Операциям (OKIOK), Казахстанской Нефтяной Ассоциации (KPA), компаний Exxon и Shell.

ЭКОЛОГИЧЕСКАЯ ПРОГРАММА КАСПИЯ

КАСПИЙСКИЙ РЕГИОНАЛЬНЫЙ СЕМИНАР ПО ПРОФИЛАКТИКЕ ПРЕДОТВРАЩЕНИЯ РАЗЛИВОВ НЕФТИ, ГОТОВНОСТИ К ЧРЕЗВЫЧАЙНЫМ СИТУАЦИЯМ И МЕРАМ РЕАГИРОВАНИЯ

АЛМАТЫ, 10-12 декабря 1998 г.

Общая информация

1. Каспийский региональный семинар по профилактике разливов нефти, готовности к чрезвычайным ситуациям и мерам реагирования проводился в Алматы, Казахстан, с 10 по 12 декабря 1998 г. Семинар был организован в рамках Экологической программы Каспия и как часть Национальной программы экологических мероприятий Казахстана.

2. В семинаре приняли участие более 200 представителей пяти прикаспийских государств, международных организаций, нефтяной промышленности и неправительственных организаций. Семинар дал возможность участникам обменяться информацией о современных программах и методах реагирования на разливы нефти и определить приоритетные меры для улучшения организационных возможностей по реагированию на чрезвычайные ситуации в Каспийском регионе, включая национальные системы реагирования и вопросы регионального сотрудничества. Спонсорами семинара выступили Всемирный банк, Агентство международного развития США (USAID), Европейский Союз (ЕС-ТАСИС) и нефтяная индустрия. Министр экологии и природных ресурсов Республики Казахстан Даукеев, будучи председателем семинара, от имени принимающей стороны подчеркнул, что Казахстан уделяет высокоприоритетное внимание предотвращению морских разливов нефти и мерам реагирования на чрезвычайные ситуации.

3. На семинаре были сделаны сообщения по следующим темам:

   - Готовность к разливам нефти и методы реагирования;
   - Современный международный опыт в случае нефтяных разливов;
   - Уязвимость окружающей среды;
   - Подход нефтяной промышленности к реагированию на чрезвычайные ситуации;
   - Принципы эффективного реагирования на нефтяные разливы;
   - Системы реагирования на нефтяные разливы в странах Каспия;
   - Инициативы по улучшению координирования и организационных возможностей по реагированию на разливы нефти в Каспийском море.

4. Во время семинара отмечался активный обмен информацией о современных правилах, программах и методах регулирования и устранения аварий и чрезвычайных ситуаций. Критическое значение для эффективности системы реагирования на чрезвычайные ситуации имеют следующие факторы: четко определенные роли и обязанности; высокая степень готовности к ситуации; планирование сценариев; быстрая мобилизация ресурсов; уровни

ответственности; подготовка персонала, осуществляемая правительствами прикаспийских стран и нефтяными компаниями. Такая система потребует пересмотра планов на случай непредвиденных обстоятельств, порядка, усовершенствования процессов планирования, координирования и повышения технической компетентности в случая аварий и чрезвычайных обстоятельств, которые могут произойти в высокочувствительной окружающей среде Каспия.

РЕКОМЕНДАЦИИ СЕМИНАРА

5. В результате семинара достигнуто общее мнение относительно следующих пяти основных рекомендаций по улучшению готовности к чрезвычайным обстоятельствам и организационных возможностей по реагированию на них:

а) Подготовить или обновить Национальные планы по реагированию на непредвиденные нефтяные разливы. Республика Казахстан обязалась в ближайшем будущем разработать пилотный проект по этой тематике.

б) Провести совместную подготовку и учения для всех стран с участием нефтяных компаний, других международных групп и НПрО. Одним из первых мероприятий может быть учение по управлению кризисной ситуацией с участием нефтяных компаний и правительств в целях испытательной проверки чрезвычайных планов.

в) Нанести на карту чувствительные зоны, в том числе социальные и экономические объекты, которые подлежат защите в случае масштабного нефтяного разлива.

г) Разработать механизмы сотрудничества между прикаспийскими странами, включая двусторонние и многосторонние внутри региональные соглашения и договоры о сотрудничестве с международными организациями, кооперативными организациями по борьбе с нефтяными разливами и нефтяными компаниями. Соглашения о сотрудничестве могут включать положения о научных исследованиях и разработках, передаче технологии, обмене информацией о диспергаторах, экологических обследованиях, моделировании разливов, а также об основных рисках нефтяных операций.

д) Создать организации или заключить договоры взаимопомощи, включая предварительное разрешение на ускоренную таможенную очистку оборудования для очистки нефтяных разливов и иммиграционный контроль персонала.

6. Помимо этого, определены многие другие вопросы, требующие дальнейшего рассмотрения, анализа и возможных действий со стороны прикаспийских государств и/или промышленности. В частности, такие вопросы включают установку принципов, на основе которых определяется ответственность виновника нефтяного разлива; соответствующие роли промышленности и правительства; методологию определения региональной ответственности в отличие от национальной; варианты финансирования, а также роль неправительственных организаций.

Другие рекомендации и результаты

7. В результате дискуссий и обмена информации во время семинара были предложены следующие рекомендации и выводы:

- Защита биологического разнообразия и экологически уникального Каспийского моря требует координированных, ответственных экологических мероприятий со стороны каждой из прикаспийских стран.

- Увеличение нефтегазовых промышленных разработок в Каспийском регионе может вызвать потенциальное повышение риска негативных воздействий на фауну и флору (особую озабоченность вызывают такие эндемические виды, как каспийский тюлень, осетровые, птицы и места их обитания). По этим причинам для нефтяной промышленности в большинстве случаев устанавливаются строжайшие нормы при проведении нефтяных операций.

- Риск нефтяных разливов возникает в результате аварий во время офф-шорного бурения, работы оборудования и установок по нефтеразработке, нефте- и трубопроводов для сырой нефти, транспортировки сырой нефти в танкерах и баржах, перевоза нефтепродуктов в портах. Вследствие этого, нефтегазовым компаниям, судоходным линиям, ответственным портовым работникам и работникам регулирующих органов необходимо разработать строгие меры по предотвращению нефтяного разлива и утечки газа и немедленного реагирования на чрезвычайные ситуации.

- Национальные планы реагирования на чрезвычайные ситуации на Каспии должны включать возможные разливы нефти из нефтяных танкеров, грузоподъемностью более 150 тонн; аварий судов, грузоподъемностью более 400 тонн; стационарных или мобильных морских платформ и трубопроводов, а также портов, занимающихся перевозкой нефти и газа.

- Необходимо разработать арбитражные процедуры между правительствами и нефтяными компаниями для решения вопросов межграничной ответственности, исков или споров между прикаспийскими странами относительно издержек на очистку от нефтяных разливов или возмещения ущерба. Эффективность таких процедур будет зависеть от предварительной договоренности между странами и нефтяными компаниями об арбитражном рассмотрении исков, а также от степени регионального сотрудничества и планирования подходов к решению проблемы нефтяных разливов.

Национальные и региональные меры

8. На основе анкет, заполненных во время семинара, и дискуссий в малых группах из конкретных стран установлены приоритетные национальные и региональные мероприятия. Основные национальные меры включают следующее:

- подготовка или обновление национальных планов по реагированию на нефтяные разливы, в том числе группы реагирования и координационные меры по ликвидации последствий нефтяных разливов и мобилизации необходимой рабочей силы;
- изучение приоритетности рисков, в том числе основных рисков нефтедобывающих операций, включая их моделирование;
- планирование сценария, включая соответствующие меры реагирования, приоритеты и стратегии;
- организация групп реагирования на нефтяные разливы для Каспийского моря;
- порядок испытания, одобрения и использования диспергантов;
- анализ требований по страхованию трубопровода, нефтегазовой разведочной и добывающей деятельности и морских операций;
- анализ необходимости организация командного центра на случай аварий, включая детальные планы и схемы систем связи;
- совместная учебная деятельность и тренировочные учения совместно с нефтяными компаниями по проверке систем реагирования на чрезвычайные обстоятельства, а также навыков и опыта персонала;
- анализ соответствия институциональной и регулирующей базы и системы реагирования на чрезвычайные обстоятельства, предусматривающий ответственность конкретных министерств и ведомств, порядок уведомления о больших нефтяных разливах, а также методы финансирования такой надзорной деятельности.

9. Приоритетные мероприятия, предусмотренные для проведения на **региональной основе**, включают следующее:

- Установить принципы для четкого определения роли виновника нефтяного разлива и правительства в случае крупной аварии;
- Разработать принципы по определению обязательств виновника нефтяного разлива возместить ущерб и расходы по очистным мероприятиям;
- Обеспечить межрегиональное сотрудничество каждого из прикаспийских стран в рамках каждого национального плана на случай нефтяных разливов;
- Подготовить многосторонние соглашения и взаимопомощи, научных исследованиях и разработках, обменом технологией, данными о диспергантах, экологическими исследованиями, данными о моделировании разливов, данными об основных рисках нефтяных операций;
- Рамочная конвенция по охране и устойчивому управлению окружающей средой и ресурсами Каспия, которая сейчас находится на этапе рассмотрения прикаспийских государств, может служить полезным механизмом разработки региональных договоров о сотрудничестве в области профилактики и реагирования на нефтяные разливы.

Последующие меры

10. В прилагаемом к настоящему отчету Плане мероприятий кратко излагаются результаты Семинара по предотвращению, готовности и реагированию на нефтяные разливы; перечисляются проекты и задания, предложенные во время выступлений и обсуждений, в качестве необходимых этапов улучшения

региональных возможностей реагировать на чрезвычайные ситуации. План мероприятий включает тематику, основные задания и под задания, цели и предусмотренные результаты, национальное участие, возможных партнеров, сметные расходы, источники финансирования для проведения намеченных мер. Важно отметить, что в большинстве случаев для выполнения мер необходимо сперва изыскать источники финансирования. Перечисленные меры могут выполняться в рамках Экологической программы Каспия либо индивидуальными прикаспийскими странами, либо как часть двусторонних или многосторонних инициатив. Многие из перечисляемых заданий могут быть включены в рабочий план Каспийского регионального тематического центра по реагированию на чрезвычайные ситуации, расположенному на территории Исламской Республики Иран.

План мероприятий

Каспийский региональный семинар по предотвращению, готовности и реагированию на нефтяные разливы

Тематика	Основные задания и под задания *	Цели/результаты	Страна(страны)	Возможные партнеры	Сметные издержки	Источники финансирования
1. Национальные планы реагирования на чрезвычайные нефтяные разливы	***1.a. Анализ данных и подготовка*** · Анализ других национальных и региональных планов действий и конвенций ММО. · Анализ существующих планов на Каспии и определение аспектов, требующих улучшения. · Анализ чрезвычайных планов по нефтяным разливам в нефтяной, трубопроводной и транспортной индустрии в регионе. ***1.b. Подготовка инструктивного документа*** · Определить детальный график, задания и цели для подготовки национальных планов действий в случае нефтяных разливов. ***1.c.*** · Начать вместе с Казахстаном пилотный проект по разработке национального чрезвычайного плана на случай нефтяного разлива.	1.a & b. Подготовка основы для разработки Национальных планов действий в чрезвычайных обстоятельствах 1.c. Пилотный проект по проверке структуры и заблаговременной	·Все страны, за исключением России, указали на необходимость разработки национальных планов по нефтяным разливам.	· Предстоит определить · Могут включать двусторонние программы, международные финансовые учреждения (МФУ). международные организации и нефтяную промышленность.	$200,000-250,000 для каждой страны	Предстоит определить (ПО)

* Many tasks or subtasks could be undertaken in more than one country, with the agreement of the countries and international partners. For example, development of procedures for use of dispersants in the Caspian, mapping sensitive areas, and joint training (*inter alia*) could usefully be carried out on a multi-country basis.

Тематика	Основные задания и под задания *	Цели/результаты	Страна(страны)	Возможные партнеры	Сметные издержки	Источники финансирования
	1.d. Подготовить или пересмотреть национальные планы чрезвычайных действий на случай нефтяных разливов: · Определить роли правительства (на национальном и местном уровне) и виновника нефтяного разлива. · Организовать группы реагирования на нефтяные разливы. · Описать экологически чувствительные зоны на основе результатов картографического проекта. · Определить приоритетное реагирование, стратегии и меры. · Включить чрезвычайные планы нефтяных компаний и портов. · Определить порядок тестирования, одобрения и использования диспергантов. · Подготовить или уточнить порядок уведомления, организовать круглосуточную горячую линию, назначить ответственных должностных лиц. · Разработать график и определить средства для периодического обучения, упражнений и тренировочных	готовности к нефтяному разливу в Казахстане. 1.d. Разработать национальные и региональные чрезвычайные планы по нефтяным разливам, в которые объединяют национальные, местные и отраслевые возможности реагирования. Определены группы реагирования, включая основных должностных лиц, определены их роли и координационные меры.				

Тематика	Основные задания и под задания *	Цели/результаты	Страна(страны)	Возможные партнеры	Сметные издержки	Источники финансирования
	упражнений. · Разработать или обновить программы охраны дикой природы. · Составить инвентарный список имеющегося оборудования. · Разработать требования по страхованию на основе принятых международных стандартов. · Определить компоненты, необходимые для увязки национальных и регионального планов чрезвычайных действий.					
2. Совместная подготовка и тренировочная учеба	Разработать программу обучения для государственных служащих после того, как определены члены каспийских групп реагирования на чрезвычайные ситуации согласно национальным планам реагирования на нефтяные разливы, включая следующие моменты: a) Определить виды обучения, необходимые для выполнения рабочих заданий. b) Работать совместно с нефтяными компаниями при определении видов обучения, проведенных для их работников и подрядчиков. c) Разработать национальные и региональные договоры	Государственному персоналу приобрести навыки, необходимые для эффективного реагирования на разливы и работе в тесном контакте с виновником нефтяного разлива. · Обучение в аудитории, упражнения по компьютерному моделированию управления кризисом и регулярные практические упражнения с выездом на места. · Упражнения по разработке сценариев, предусматривающие проверку порядка на	Высокая приоритетность для Ирана, Казахстана и Туркменистана. · В Азербайджане SOCAR уже работает с международным нефтяными компаниями. · Россия уже работает с нефтяными компаниями, Японским агентством морской безопасности береговой охраной США. · В целом, все	· Подлежит определению · Может включать двусторонние программы, МФУ, международные организации и нефтяную промышленность.	· Подготовка обучения: $60,000 · Проведение обучения: $30,000 в год для каждой страны. · Основная установка для компьютерного моделирования: $300,000 · Предполагается, что государственные служащие будут приглашены для участия в игровой ситуации, организованной нефтяной компанией; · В этом случае	ПО

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	о сотрудничестве с нефтяными компаниями и кооперативами по ликвидации разливов нефти для совместной подготовки и учений. d) Провести учебное занятие на компьютере для проверки планов чрезвычайных действий при руководстве мерами по ликвидации аварии.	случай чрезвычайных обстоятельств. · Игровые задания для командного поста или учения на местах по передаче технологии и укреплению сотрудничества, проведенные с нефтяными компаниями.	страны указали на высокую приоритетность обучения.		потребуется $50000 на подготовку и командировочные расходы для каждого участника.	
3. Отметка на картах уязвимых зон	· Проанализировать существующие планы чрезвычайных действий, отчеты, оценки воздействия на окружающую среду, другие информационные документы для определения экологически чувствительных зон. · Нанести на карту все экологически уязвимые зоны и описать имеющиеся ресурсы, места обитания или установки (например электростанции, сооружения для десалинизации), подлежащие охране; также указать наличие объектов культуры, археологии или религии. · Классифицировать места обитания или уязвимые зоны как высоко-, средне- и мало приоритетные.	· Информация об уязвимых зонах, полученная для подготовки стратегии реагирования при подготовке национальных планов чрезвычайных действий при нефтяных разливах.	· Все прикаспийские государства, за исключением России, относят эту тематику к высоко-приоритетной. · Российская Федерация уже провела определенную работу по этой теме и классифицировала взаимопомощь и многосторонние договоры как высоко-приоритетные.	· Предстоит определить · Может включать двусторонние программы, МФУ, международные организации и нефтяную промышленность. Возможна активная привязка к работе Каспийских региональных тематических центров по вопросам права/ регулирования (Россия) и чрезвычайного реагирования (Иран).	· $250,000-375,000 для региона	ПО

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	· Картографические данные могут быть собраны на национальном или региональном уровне. Однако для охраны уязвимых зон необходимо применять последовательный подход. · Подготовить рекомендации по мерам охраны на основе картографической информации, приоритетности риска и обследований, связанных с моделированием нефтяных разливов.					
4. Механизмы сотрудничества	· Проанализировать существующие и предлагаемые соглашения между прикаспийскими государствами и с нефтяными компаниями. · Изучить международные конвенции по реагированию на нефтяные разливы, финансированию, ответственности, компенсации. · Рассмотреть двусторонние и многосторонние договоры других регионов (Северного моря, США-Канады), которые можно использовать в качестве моделей для Каспийского соглашения. · Провести консультации с нефтяными компаниями на предмет определения	· Разработать эффективный механизм регионального сотрудничества в целях реагирования на нефтяные разливы, включая совместные планы чрезвычайных действий и стратегии для минимизации ущерба от крупного разлива нефти.	· Российская Федерация, Туркменистан, Иран отнесли этот вопрос к высоко приоритетным. · Казахстан и Азербайджан считают гораздо более приоритетными национальные чрезвычайным действиям в случае нефтяных разливов и взаимной помощи как составную часть эффективной системы реагирования на чрезвычайные	· ПО · Может включать двусторонние программы, МФУ, международные организации и нефтяную промышленность. · Возможна активная привязка к работе Каспийских региональных тематических центров по вопросам права/ регулирования (Россия) и чрезвычайного реагирования (Иран)	· Примерно $500,000 в течение трех лет	

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	механизмов сотрудничества. · Подготовить проекты одного - двух договоров о сотрудничестве, в которых определяются механизмы взаимодействия и сотрудничества между каспийскими странами, а также с нефтяной и транспортной промышленностью и обратиться к вопросу о роли НПрО.		обстоятельства.			
5.Взаимная помощь	· Организовать рабочие группы на национальном и региональном уровнях для координирования создания системы взаимопомощи в таких вопросах, как оборудование, используемое при реагировании на нефтяные разливы и персонал. · Рабочие группы занимаются a) инвентаризацией оборудования в Каспийском регионе; b) подготовкой договоры о взаимной помощи; c) определяют и устраняют сдерживающие факторы на пути оперативной перевозки оборудования и персонала через национальные границы, и разрабатывают	· Эффективная система поставки оборудования для ликвидации нефтяных разливов и персонала из каспийского региона в целях оперативного и экономически эффективного реагирования.	· Взаимная помощь отнесена к категории высоко приоритетных всеми каспийскими странами.	· ПО · Может включать двусторонние программы, МФУ, международные организации и нефтяную промышленность	· $450,000 для начального семинара, консультацион-ных услуг, финансирования рабочих групп	ПО

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	порядок предварительного одобрения таможенной и иммиграционной очистки. d) Представить рекомендацию о воздушной перевозке оборудования к месту нефтяного разлива. e) Представить рекомендации о разделении расходов или признании финансовых обязательств, как, например, сделали ответственные нефтяные компании, обязавшиеся представить оборудование для ликвидации нефтяных разливов.					
6. Подготовка списка приоритетных рисков	· Каждая страна должна составить перечень основной нефтегазовой деятельности' включая офф-шорные платформы, трубопроводы, терминалы, морские операции и перевозку. · Изучить относительные риски каждого вида деятельности на основе месторасположения установок и сооружений, состояния оборудования, близости экологически уязвимых зон, вид производимой или	· Определить деятельность, связанную с основным риском, случаи максимального негативного воздействия, стратегию оптимального реагирования и мер по сокращению последствий, что даст возможность правительствам и компаниям эффективно	· Все каспийские страны отметили важность оценки рисков в результате проведения различной деятельности в области нефтегазовой промышленности, разработки планов и стратегии	· ПО · Может включать двусторонние программы, МФУ, международные организации и нефтяную промышленность.	· $350,000 для региона	ПО

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	перевозимой нефти, а также вариант сценария самого опасного нефтяного разлива. · На основании анализа составить перечень рисков в приоритетном порядке.	планировать для наиболее вероятных сценариев нефтяных разливов. ·Приоритетность и стратегии реагирования способствуют подготовке национальных планов чрезвычайных действий на случай нефтяных разливов.	реагирования и мер по сокращению нефтяных разливов.			
7.Моделирование нефтяных разливов в зонах особого риска.	· Собрать информацию об основной офф-шорной нефте-газовой деятельности, включая месторасположение и физические характеристики. · Собрать информацию о направлении ветров, течениях и приливах. · Прогнозировать эффекты разливов. · Используя собранные данные прогнозировать эффекты крупных нефтяных аварий; зоны воздействия; наихудшие сценарии; определить меры оптимального реагирования.	· Моделирование нефтяных разливов совершенно необходимо для прогнозирования зон, подверженных максимальному риску; экологически уязвимых зон, требующих особой защиты; для определения места размещения оборудования и персонала как часть национального плана чрезвычайных мер в случае нефтяного разлива.	· Азербайджан, Иран, Казахстан отнесли планирование сценариев к весьма важной деятельности.	· ПО · Может включать двусторонние программы, МФУ, международные организации и нефтяную промышленность	· $50,000 для каждой страны или примерно $250,000 для региона	ПО
8.Установить принципы определения роли виновника нефтяного разлива и Правительства в ее ликвидации	· Организовать региональную рабочую группу для анализа текущих обязанностей и рассмотрения вариантов определения ответственности виновника нефтяного разлива; определить, каким образом практически реализовать эти принципы в регионе.	· Определить роли и обязанности правительства и виновника нефтяного разлива при очистке. · Разработать последовательный подход к реагированию на нефтяные разливы	· Иран, Казахстан, Туркменистан отнесли этот вопрос к очень важным. · При дополнительной разработке нефти и газа в офф-	· ПО · Может включать двусторонние программы, МФУ, международные организации (например, ММО) и нефтяную промышленность.	· $100,000 для региона	ПО

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	· Рассмотреть опыт международных организаций, других государств, нефтяной и транспортной промышленности с тем, чтобы сформулировать обязанности виновника нефтяного разлива и правительства. · Представить рекомендации по обязанностям, которые должные быть включены в национальный план чрезвычайных действий в случае нефтяного разлива.	для всего Каспийского региона. · Результаты учесть в национальном плане чрезвычайных действий при нефтяном разливе, что приведет к более эффективному подходу к мерам реагирования во всем регионе.	шорной зоне, этот вопрос будет вызывать озабоченность нефтяных компаний в ближайшие годы.			
9.Установить принципы в отношении ответственности виновника нефтяного разлива	· Проанализировать современный подход к ответственности в каждом из прикаспийских стран; · Проанализировать соответствующие международные конвенции и подходы к ответственности в 3-4 странах; · Рекомендовать международные договоры по решению вопросов транс граничной ответственности; · Разработать четкий набор принципов для определения ответственности виновника в пределах одной нации. · Определить арбитражный порядок для рассмотрения исков среди каспийских стран.	· Четкие принципы, служащие для нефтяных компаний руководством о их обязанностях по покрытию издержек по очистным мерам и нанесенному ресурсам ущербу. · Установить уровень ответственности, необходимый для ответственности правительств за очистку нефтяных разливов государственными предприятиями. · Представить результат для учета в национальных планах чрезвычайных действий с тем, чтобы внести ясность в вопрос об уровне ответственности.	· Все прикаспийские страны отнесли вопросы ответственности к категории важных.	· ПО · Может включать двусторонние программы, МФУ, международные организации (например, ММО) и нефтяную промышленность	· Подготовка аналитической записки о позиции в отношении ответственности виновника нефтяного разлива: $20,000 · Региональный семинар по обсуждению вопросов ответственности: $100,000	ПО
10. Создание базы данных или	· Проанализировать существующую компьютерную	· Обеспечить инструмент для обмена и	· Эта рекомендация дана Казахстаном в	· ПО · Может включать	· $200,000 для ввода данных и	ПО

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компьютерной странички	страничку по Экологической программе Каспия; · Получить доступ к тем видам информации, которые необходимы для сообщения между Каспийскими странами, с НПрО и нефтяными транспортными компаниями. · Определить оптимальное расположение, формат, и стоимость базы данных по предотвращению нефтяных разливов, готовности и реагированию в виде проектов, порядка, планов, программ. · Создать или обновить базу данных или компьютерную страничку.	управления информацией для обеспечения связи на региональном уровне, с НПрО и промышленностью.	целях обеспечения эффективной связи и координирования с НПрО и другими каспийскими странами.	двусторонние программы, МФУ, международные организации и нефтяную промышленность	оплаты персонала в течение 3-х лет	
11.Анализ современных институциональ-ных возможностей (правил и оборудования)	· Рассмотреть современные правовые нормы каспийских стран в отношении транс граничных разливов и реагирования. · Такой анализ должен включать организационно-правовую основу для планов чрезвычайных действий, потребности в оборудовании, уровни ответственности, обязанность виновника аварии, арбитражное рассмотрение исков, финансирование деятельности, порядок уведомления виновника аварии, использование диспергантов, охрана уязвимых зон, обмен информацией и связь с соседними странами, обучение	· Укрепить институциональные возможности и обеспечить наличие эффективных система реагирования на чрезвычайные ситуации. · Организовать командный центр и круглосуточную горячую линию; · Разработать правовую базу, которая даст возможность прикаспийским странам совместно работать над ратификацией соответствующих международных	· Иран и Россия отнесли этот вопрос к очень важным.	ПО · Может включать двусторонние программы, МФУ, международные организации и нефтяную промышленность ·	· $400,000 для региона · Командные центры: от $300,000 до $1,000,000 плюс Каждая республика должна дать оценку надобности такого центра и подготовить свою смету.	ПО

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	и штрафы. · Рассмотреть возможность разработки юридических двусторонних и многосторонних договоров.	конвенций по нефтяным разливам, в том числе планы чрезвычайных действий, финансирования, ответственность и компенсация за морские разливы.				

I. Готовность к разливам нефти и меры реагирования: международные и региональные перспективы

Выступление

Председателя Комитета Республики Казахстан
по чрезвычайным ситуациям
Кулмаханова Ш.К.

на семинаре по проблемам профилактики разливов нефти, предупреждения возникновения чрезвычайных ситуаций, готовности к ним и методов реагирования.

Алматы
Декабрь, 1998г

Система предупреждения и ликвидации чрезвычайных ситуаций в Казахстанском секторе Каспийского моря при разливе нефти

Уважаемый господин Председатель!
Уважаемые дамы и господа!

Обсуждаемая на настоящем семинаре тема жизненно важна для Казахстана. В то же время проблема предотвращения загрязнения нефтью, технологическими растворами уникального Каспийского моря является общей задачей всех Прикаспийских государств, органов и неправительственных организаций, нефтяных компаний, принимающих участие в освоении недр Каспийского моря.

Поэтому обмен мнениями, опытом, принципиальный откровенный разговор по рассматриваемому вопросу позволит нам принять оптимальные решения, предупреждающие возникновение чрезвычайных ситуаций в этом регионе.

Согласно законодательства Республики Казахстан, правительственных решений, координирующим центральным государственным органом в области предупреждения и ликвидации последствий аварий, катастроф и стихийных бедствий является Комитет Республики Казахстан по чрезвычайным ситуациям.

Позвольте кратко ознакомить вас со структурой и функциями Комитета.

Здесь, на слайде №2 вы видите историческую справку формирования Комитета по чрезвычайным ситуациям.

В настоящее время Комитет по чрезвычайным ситуациям объединяет системы Гражданской обороны и соответствующих воинских частей, Государственной противопожарной службы, Государственного надзора за чрезвычайными ситуациями, безопасным ведением работ в промышленности и горному надзору (бывший Госгортехнадзор), подведомственные территориальные органы.

Кроме того, Комитет координирует работу трех Межведомственных комиссий:

- Межведомственной государственной комиссии по предупреждению и ликвидации чрезвычайных ситуаций;
- Межведомственной комиссии по обеспечению безопасности на транспорте;
- Межведомственной чрезвычайной противоэпидемической комиссии, членами которых являются руководители Министерств и ведомств, председатели областных комиссий по ЧС.

Комитет состоит из центрального аппарата, территориальных управлений и подведомственных организаций.

Распределение функциональных обязанностей государственных органов в области предупреждения и ликвидации чрезвычайных ситуаций регулируется законодательством Республики Казахстан, решениями Правительства (слайд3).

Комитет Республики Казахстан по чрезвычайным ситуациям является центральным исполнительным органом, специально уполномоченным в области чрезвычайных ситуаций природного и техногенного характера, и

осуществляет реализацию государственной политики по вопросам защиты населения, окружающей среды и объектов хозяйствования от аварий, катастроф и стихийных бедствий и в этих целях, в соответствии с законодательством, проводит межотраслевую координацию.

На местные представительные и исполнительные органы возложена ответственность за предупреждение и ликвидацию чрезвычайных ситуаций на соответствующей территории. При областном, городском, районном акимах созданы соответствующие комиссии по ЧС.

В соответствии с постановлением Правительства № 1298 от 28 августа 1997 года осуществление, согласованных с Комитетом по ЧС мероприятий по предотвращению и ликвидации последствий аварий и катастроф, возложено на Министерство энергетики, индустрии и торговли, Министерство транспорта и коммуникаций, Министерство экологии и природных ресурсов, Министерство обороны, Министерство внутренних дел, Министерство сельского хозяйства, по принадлежности.

Комитет Республики Казахстан по чрезвычайным ситуациям, по решению Правительства Республики Казахстан, осуществляет непосредственное руководство Государственной системой предупреждения и ликвидации региональных и глобальных чрезвычайных ситуаций природного и техногенного характера. Поэтому Комитет наделен соответствующими полномочиями (слайд 4).

Законодательная база по вопросам предупреждения и ликвидации чрезвычайных ситуаций в первую очередь включает в себя Закон РК «О чрезвычайных ситуациях природного и техногенного характера», другие нормативно-правовые акты в области чрезвычайных ситуаций, предусматривающие порядок предупреждения, снижения

ущерба и ликвидации последствий аварий, катастроф и стихийных бедствий, привлечения материально-технических ресурсов и транспортных средств организаций, независимо от форм собственности и ведомственной принадлежности, оказания экстренной медицинской помощи.

Координация деятельности и оперативное управление всеми аварийно-спасательными службами и формированиями в республике возложена на Комитет РК по ЧС.

Аварийно-спасательные службы и формирования создаются на постоянной штатной основе - профессиональные аварийно-спасательные службы, в том числе военизированные горноспасательные, *противофонтанные*, газоспасательные, противопожарные, оперативно-спасательные и другие, специализированные в области ЧС, части и подразделения.

Постановлением Правительства Республики Казахстан №1139 от 9 ноября 1998 года создано Республиканское государственное казенное предприятие «Ак Берен». Целью и основным предметом деятельности которого является осуществление комплекса работ по предупреждению возникновения открытых газовых и нефтяных фонтанов на территории Республики Казахстан, в том числе шельфах морей и водоемов, выполнение неотложных аварийно-спасательных работ, участие в ликвидации открытых газовых и нефтяных фонтанов.

Подобные крупные сервисные компании должны получить соответствующие лицензии на аварийно-восстановительную деятельность в Комитете Республики Казахстан по чрезвычайным ситуациям.

Учитывая особенности проведения морских нефтяных операций, назрела необходимость создания в г. Актау, поселке Баутино, в составе Республиканского государственного казенного противофонтанного предприятия

«Ак Берен», специализированной службы по быстрому реагированию на случаи инцидентов при освоении нефтегазовых месторождений на море, укомплектованной специалистами, обученными на морских противофонтанных полигонах.

В целях обеспечения технического надзора при подготовке и проведении нефтяных операций на море и внутренних водоемах Республики Казахстан, приказом Комитета от 16. 04. 98 г. № 84 создана Специализированная Морская государственная инспекция.

Ситуация по освоению минеральных ресурсов Северного Каспия. Казахстанский сектор Каспийского моря – это мелководная зона и ее северная часть зимой замерзает. Это область с экологически чувствительной природной средой и уникальной морской флорой и фауной.

Учитывая, что Северный Каспий с 1974 года является заповедной зоной, исследования по возможности разработки минеральных ресурсов в море проводились постоянно (слайд 5). При этом особое внимание уделялось **оценке риска возникновения ЧС в акватории моря.** По результатам экспертизы Проекта разведочного бурения на Северном Каспии в части обеспечения безопасных условий работы установлено, что серьезные аварийные ситуации и осложнения, в основном, связываются с бурением подсолевых отложений, где ожидаются опасные проявления катастрофических поглощений раствора, аномально высоких пластовых давлений и углеводородов с высоким содержанием сернистых соединений.

Нефтяным компаниям необходимо помнить последствия открытого фонтанирования скважины №37 Тенгизского месторождения в 1985 году, когда на его ликвидацию потребовалось более 14 месяцев. За это время было

выброшено в атмосферу более 4 млн. тонн нефти, 2,5 мрд. куб.м газа с опасной концентрацией сероводородных соединений.

Чтобы в дальнейшем не допустить подобных катастрофических аварий, необходимо очень тщательно предусмотреть **планирование мероприятий по предупреждению и ликвидации разливов нефти.** (слайд 6) Разлив нефти в Северном Каспии может возникнуть в результате аварийного фонтанирования скважин во время бурения. В соответствии с существующими Правилами, каждая компания - оператор должна представить на согласование в Комитет Республики Казахстан по чрезвычайным ситуациям План предупреждения и ликвидации фонтанов. Данный план должен определять конкретную компанию, которая будет осуществлять работы по ликвидации открытых фонтанов и устранение их последствий.

Для всех видов деятельности, связанной с разработкой, включая сейсмические исследования и разведочное бурение, должны быть составлены планы мероприятий по предупреждению и ликвидации разливов не только нефти, но и топлива, химреагентов, опасных веществ и материалов. При составлении этих планов следует учитывать степень риска, связанную с разливами, а также возможный объем и тип разливаемой жидкости. В плане должны быть указаны типы технических средств для борьбы с разливами, потребность в рабочей силе, организационные мероприятия, обеспечивающие эффективную ликвидацию больших и малых разливов, а также перечень наиболее уязвимых и чувствительных участков вместе со средствами их защиты.

В плане должны быть четко обозначены действия, предпринимаемые в случае разлива, включая систему связи,

организационную структуру, обязанности каждого лица, руководящего работами по ликвидации разлива, и контакты с соответствующими органами и ведомствами. План должен также предусмотреть способы удаления разлитой нефти, загрязненного грунта и мусора, а также доставку на место и благоустройство личного состава, привлеченного к ликвидации разлива. План следует регулярно отрабатывать на практике, проводя учения, и обновлять по мере необходимости, а выделенный на его реализацию персонал должен поддерживаться в постоянной готовности для четкого выполнения своих обязанностей при разливе.

В плане ликвидации возможных аварий должно предусматриваться присутствие персонала противофонтанной службы перед вскрытием флюидосодержащих пластов. Вскрытие пластов должно проводиться после проверки и установления готовности буровой и персонала. Проверку осуществляет комиссия бурового предприятия с участием представителей противофонтанной службы.

Особое внимание должно уделяться **обучению и тренировке персонала.** Компания, проводящая нефтяные операции, должна иметь обученную и тренированную аварийную команду, которая может развернуть оборудование в кратчайшие сроки и аварийный план, определяющий вероятностные риски и способы борьбы с ними. Такой план, являющийся составной частью общего аварийного плана и плана безопасного ведения работ, должен согласовываться с органами по надзору за ЧС наравне с Техническим проектом и регулярно отрабатываться в ходе учений. Учения должны предусматривать взаимодействие с Комитетом Республики Казахстан по чрезвычайным ситуациям, его территориальными органами, службами.

Система реагирования при возможных разливах нефти. Согласно Проекта разведочного бурения, для ликвидации любых аварийных ситуаций и борьбы с их последствиями, в том числе влекущих за собой разливы нефти на море, предусматривается три уровня реагирования.

Первый уровень предусматривает вовлечение персонала и оборудования, находящихся на морской буровой барже и вспомогательных судах. Имеющееся заградительное и нефтесборное оборудование, техника и людские ресурсы позволяют ликвидировать разлив до 10 тонн.

Второй уровень предусматривает борьбу с разливами до 100 тонн. В этом случае будет задействовано оборудование и техническая помощь с береговой базы производственного обеспечения, расположенной в п. Баутино. Время мобилизации несколько часов.

Третий уровень реагирования предполагает привлечение международной помощи специализированных центров по борьбе с разливами на море. Ближайшие центры находятся в Западной Европе. Время мобилизации персонала международных аварийно-спасательных служб и оборудования до аэропорта составляет 12 часов.

В ходе работы данного международного семинара мы должны обсудить нерешенные вопросы по предотвращению чрезвычайных ситуаций на море (слайд 7). На наш взгляд **основными проблемами по реагированию на ЧС, связанные с разливами нефти на море являются следующие.**

Существующая нормативная база Республики Казахстан еще недостаточно регулирует вопросы:

- Действия нефтяных компаний, центральных и местных исполнительных органов, других ведомств и организаций при разливах;

- Обязательства сторон, призванных обеспечить безаварийную эксплуатацию нефтяных скважин на море;
- Совместные действия государств и компаний по трансграничным разливам нефти и сотрудничество;
- Процедуры оперативного оповещения Правительства и соседние государства;
- Принципы быстрого таможенного контроля аварийного оборудования, проходящего границы Прикаспийских стран;
- Ответственность компаний за расходы, понесенные на очистку и компенсацию ущерба;

До настоящего времени консорциумом нефтяных компаний не в полной мере решены организационные, финансовые, технические вопросы при возможном инциденте разлива нефти.

Операционной Компанией ОКИОК не представлены и не согласованы планы действия при возникновении открытых нефтегазовых фонтанов и других аварий на море.

Поэтому Комитет Республики Казахстан по чрезвычайным ситуациям предлагает дополнительно рассмотреть ряд принципиально важных вопросов (слайд 8) и проработать детальные **мероприятия по ликвидации разливов.** При этом они должны включать в себя следующие требования:

- Каждая нефтяная компания или группа компаний, работающих на морских участках, расположенных в непосредственной близости друг от друга, должны иметь запас оборудования для борьбы с разливами нефти и мобильное скоростное судно для доставки такого оборудования в короткий промежуток времени к месту аварии и его быстрого развертывания для сдерживания нефти и ее очистки.
- При возможном применении химических диспергаторов для

ликвидации разливов нефти важно выбрать те из них, которые эффективны, обладают низкой токсичностью, не накапливаются в организме и способны к биохимическому разложению. Для их использования при разливах нефти нужно предварительно получить соответствующее разрешение.

В широкомасштабной работе по предупреждению и ликвидации возможных разливов нефти мы рассчитываем на плодотворное **Международное сотрудничество,** что позволит строго соблюдать общепринятые принципы и правила профилактики разливов нефти.

В целях повышения эффективности организации работ при ликвидации разливов нефти на море в Республике Казахстан, вносится на рассмотрение ряд предложений, который способстовал бы координации и объединению усилий прикаспийских государств для незамедлительного реагирования на чрезвычайные ситуации, связанные с крупными разливами нефти на акватории Каспия:

- Подписание прикаспийскими государствами межправительственного соглашения об учреждении Координационного межгосударственного центра по информированию СМИ и населения о возникновении чрезвычайной ситуации на шельфе Каспия, связанной с крупным разливом нефти (более 100 тонн);
- Подписание заинтересованными государствами соглашения о быстром доступе к национальным складам с аварийным оборудованием, включая те, что находятся в распоряжении национальных нефтяных компаний;
- Решение вопросов о незамедлительном вводе аварийного оборудования для борьбы с разливами нефти без таможенной проверки и сертификационных процедур;
- Подписание соглашения о проведении совместных

аварийных работ на нефтяных разливах, пересекающих национальные границы;

- Унификация принципа ответственности за ЧС, управления работами по ликвидации разливов и принятия принципиальных решений, где компаниям отводится роль основного исполнителя и руководителя работ; национальным аварийно-спасательным службам - роль советника и вспомогательных сил поддержки; государству - роль межгосударственного координатора.

Комитет Республики Казахстан по чрезвычайным ситуациям, придавая особое внимание рассматриваемой проблеме, готов наладить тесное взаимодействие со всеми прикаспийскими государствами и компаниями, проводящими морские операции по освоению углеводородного сырья в Каспийском море.

Создание в регионе специализированной аварийно-спасательной службы быстрого реагирования позволит объединить усилия прикаспийских государств, компаний, международных организаций по ликвидации крупных аварий на море. Надо безотлагательно решить вопрос финансирования, оснащения этой службы аварийно-спасательной техникой, плавсредствами, обучить привлекаемый персонал, штатных спасателей, противофонтанные службы.

Только совместными, продуманными мерами и действиями можно предотвратить аварии, избежать чрезвычайные ситуации с тяжелыми последствиями.

В заключении разрешите пожелать участникам международного семинара плодотворной работы, успешного решения непростых задач по обсуждаемой проблеме.

Благодарю за внимание!

10 декабря 1998 г.

ЭКОЛОГИЧЕСКАЯ ПРОГРАММА КАСПИЯ[1]

История вопроса

По инициативе прибрежных государств Каспийского региона [2] в апреле 1955 г. объединенная миссия Всемирного банка, Программа развития Организации Объединенных Наций (ПРООН) и Программа ООН по окружающей среде (ЮНЕП) положили начало подготовке экологической программы Каспия (ЭПК). Европейский союз/программа ТАСИС также принимают участие в Программе, оказывая существенную техническую помощь и поддержку по подготовке проекта. ЭПК ставит общую задачу обеспечить устойчивое развитие и управление окружающей средой Каспия, главной и уникальной экосистемы, которая находится под угрозой загрязнения и утраты биоразнообразия. Правительства прикаспийских стран и международные партнеры также определили следующие дополнительные цели:

- Понимание процессов изменения уровня воды в Каспийском море и приспособление к таким явлением;
- Борьба с существующими и предупреждение новых типов загрязнения и ухудшения состояния природной среды Каспия и его ресурсов;
- Оздоровление и восстановление поврежденных, но имеющих потенциал к возрождению, элементов экологии Каспия (в том числе и биоразнообразия);
- Достижение устойчивого качества окружающей среды и сохранение природных ресурсов как достояния нынешнего и будущего населения региона.

Основные компоненты программы

- Управление береговой зоной
- Изменение уровня моря
- Борьба с опустыниванием береговой зоны и деградацией почвы
- Профилактика, контроль и сокращение загрязнения окружающей среды
- Реагирование на чрезвычайные ситуации
- Защита биоразнообразия
- Рациональное управление рыбными и прочими ресурсами
- Нормативно-правовые и экономические инструменты
- Устойчивое развитие людских ресурсов и здравоохранение
- Система сбора и управления информацией

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[1] Подготвлена Всемирным банком; в ЭПК принимает участие несколько международных организаций, в частности, ПРООН, ЮНЕП, ЕС-ТАСИС.

[2] Азербайджан, Иран, Казахстан, Россия и Туркменистан.

- Общественная информация
- Разработка региональной конвенции об охране окружающей среды и управлении биоресурсами
- Подготовка портфеля приоритетных инвестиций (ППИ);
- Разработка, утверждение и выполнение Стратегической программы действий по сохранению окружающей среды Каспия.

Список Национальных координаторов экологической программы Каспия и реквизиты всех международных организаций, участвующих в программе приводятся в приложении.

События 1998 г.

Программа ТАСИС по сохранению Каспия. В рамках программы Европейского Союза ТАСИС выделено 2,5 млн ЭКЮ для первого двухгодичного этапа программы ЭКП, которые будут использоваться для оказания помощи в создании Каспийских региональных тематических центров (КРТЦ) во всех четырех странах, где проводится программа ТАСИС, а также на организацию Координационного отдела программы (КОП). ТАСИС также вносит вклад в идентификацию и подготовку портфелей приоритетных инвестиций (ПИП). В январе 1998 г. ТАСИС заключил контракт с фирмой Лахмайер Интернэшнл (Lahmeyer International), посредством которой осуществляется работа в рамках ЭПК. ТАСИС также одобрил предоставление второй части средств 3MECU для продолжения ЭПК. Этап 2 программы ТАСИС ставит , в основном, такие же задачи, что и Этап 1. При этом основное внимание уделяется пилотным проектам и демонстрационной деятельности по практическому улучшению состояния окружающей среды вокруг Каспия. Этап 2 программы планируется начать в середине 1999 г.

Руководящий комитет Экологической программы Каспия. В Рамасаре, Иран, с 3 по 5 мая 1998 г. состоялась встреча представителей пяти прикаспийских государств (Азербайджан, Иран, Казахстан, России, Туркменистан) и международных организаций (Всемирный банк. ТАСИС, ПРООН, ЮНЕЮ и других организаций ООН), на которой была достигнута договоренность по ряду основных вопросов, в частности, страны:

Приняли заключительный вариант Концепции за основу организации Экологической программы Каспия;

Определили место расположения Координационного отдела программы: Баку (первые четыре года программы) и Иран (следующие четыре года программы);

Определили тематику и места расположения девяти Каспийских региональных тематических центров:

Азербайджан
контроль загрязнения/информационное управление (также место расположения КОП)

Иран
управление береговой зоной, система реагирования на чрезвычайные ситуации, мониторинг загрязнения

Казахстан
биоразнообразие, изменение уровня воды

Россия
рыбные ресурсы/биоресурсы, нормативно-правовая база

Туркменистан
опустынивание, устойчивое развитие людских ресурсов/здоровье человека

Приняли проект краткой программы ГЭФ в качестве технической основы для выполнения ЭПК.

Организация КОП (координационного отдела программы) и КРТЦ (каспийских региональных тематических центров). При содействии ТАСИС в Баку организован КОП, и открыты КРТЦ по вопросам опустынивания (Туркменистан), контроля загрязнения (Азербайджан), и устойчивого управления рыбными ресурсами (Россия). Четвертый центр, открываемый при поддержке ТАСИС, по вопросу колебания уровня воды (Казахстан) предусмотрен к открытию в конце 1998 г. Всемирный банк и ПРООН окажут содействие Ирану в разработке рабочих планов для тематических центров в Иране (комплексное управление береговой зоной, реагирование на чрезвычайные ситуации, мониторинг загрязнения), финансирование которых будет обеспечиваться за счет средств ГЭФ, предоставленных под проекты. Грант ГЭФ также будет использоваться на финансирование тематических центров по вопросам биоразнообразия (Казахстан) и нормативно-правовых вопросов (Россия). Изыскиваются средства для финансирования Центра здоровья человека в Туркменистане. Реквизиты КОП и КРТЦ приводятся ниже.

Предложение ГЭФ одобрено. ПРООН вместе с прикаспийскими государствами подготовило предложение на получение гранта для каспийской программы в рамках программы ГЭФ по международным водным путям. Предложение было одобрено в октябре 1998 г.. планируемая дата начала программы - январь-февраль 1999 г. Грант в примерной сумме 7,6 млн. долл. США одобрен Советом ГЭФ для поддержки программной деятельности, начала работы пяти тематических центров, продолжения финансирования работы КОП в течение трех лет с начала 1999 г.

Экотоксикологическое обследование. В результате проведения Семинара по сети биоресурсов в ноябре 1997 г. получен грант в сумме 994 тыс. долл. США от Правительства Японии через траст-фонд Всемирного банка для регионального обследования по определению концентраций токсичных веществ в таких распространенных на Каспии хищных видах, как осетр, тюлень, костистая рыба. Детальная планировка обследования намечена на первый квартал 1999 г. наряду с семинаром с участием прикаспийских и международных специалистов.

Срочный инвестиционный экологический проект в Азербайджане. Банк и Азербайджан провели переговоры и утвердили пятилетний проект в сумме 24,5 млн. долл. США (кредит МАР 20 млн. долл. США) на строительства рыбопитомника для осетровых на реке Куре, очистки ртутных загрязнений в Сумгаите, решение вопроса нефтяных загрязнений почвы, наземных и подземных вод на Апшеронском полуострове, а также укрепление

управленческих возможностей в сфере экологии. Начало реализации проекта запланировано на ноябрь 1998 г.

Идентификация проектов в России и Казахстане. Первоначальные идеи проектов, связанные с восстановлением осетрового промысла, предотвращением и очисткой от загрязнений, вызванных нефтяной промышленностью, обсуждались с местными специалистами и государственными должностными лицами этих стран.

Региональный семинар по предотвращению морских разливов нефти и мерам реагирования. По просьбе Министерстве экологии Казахстана и в результате рекомендаций Руководящего комитета ЭПК в мая 1988 г. в Рамсаре, Банк и другие международные партнеры договорились организовать Семинар по профилактике нефтяных разливов, готовности, и мерам реагирования, которым проводился 10-12 декабря в Алматы. Цель семинара укрепить сотрудничество между прикаспийскими правительствами и нефтяными компаниями, и помочь наметить полезную деятельность в будущем для улучшения экологического управления в этом секторе.

События до и в течение 1997 г

Семинар по биоресурсам. В ноябре 1997 небольшая группа представителей сети биоресурсов встретилась впервые на семинаре, чтобы обменяться информацией о проблемах, угрожающих биоразнообразию Каспия и определить предварительные пилотные проекты, которые будут выполняться и/или координироваться членами сети биоресурсов. Они также представили информацию для использования в рабочих программах тематических центров по биоресусрсам и биоразнообразию и определили последующие шаги для Биосети. Доклады, представленные на встрече, опубликованы в виде протокола заседания.

Ход подготовки Рамочной конвенции по защите морской среды Каспийского моря. ЮНЕП провел две встречи (в декабре 1995 г. и ноябре 1996 г.) для изучения организационно-правовых вопросов, связанных с Каспием, а также для ускорения разработки Рамочной конвенции. Следующая встреча предусмотрена в начале или середине 1999 г.

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II. Освоение новых запасов нефти и газа, правовые аспекты разливов нефти и подход к эффективным мерам реагирования

ДОКЛАД
Вице-министра Е.Досаева
На международном семинаре по предупреждению и реагированию на разливы нефти в Каспийском море

Тема доклада: Перспективы развития нефтегазовой промышленности. Ключевые проблемы и пути их решения.

Господин (г-жа) Председатель! Уважаемые дамы и господа!

Прежде всего мне бы хотелось поприветствовать участников международного семинара по проблемам профилактики разливов нефти, предупреждения возникновения чрезвычайных ситуаций, поблагодарить за приглашение и предоставленную возможность выступить.

В своем выступлении мне бы хотелось осветить перспективы развития нефтегазовой промышленности, ключевые проблемы, меры, принимаемые Министерством энергетики, индустрии и торговли РК по решению этих проблем.

Республика Казахстан располагает значительными запасами нефти и газа. Разведанные запасы промышленных категорий по 202 нефтяным и газовым месторождениям составляют 2,2 млрд.тонн нефти, 0,7 млрд.тонн конденсата и 2,3 трлн.м 3 газа. Прогнозные ресурсы углеводородов Республики по различным оценкам достигают 7 млрд.тонн нефти и 7,5 трлн.м3 газа. Потенциально наиболее богатой является Прикаспийская впадина вместе с акваторией Каспия, где неразведанные ресурсы нефти составляют около 94%, конденсата-97%, свободного газа –95% от суммарных ресурсов УВ Казахстана.

Значительные перспективы прироста запасов нефти и газа связываются с освоением Каспийского моря. Казахстанский сектор Каспия имеет площадь около 100 тыс.кв.м. С 1994 по 1997 год акционеры компании ОКИОК (Оффшор Казахстан Интернешнл Оперейтинг Компани, ее акционерами являются Аджип, Бритиш Газ, Би Пи, Инпекс, Мобил, Филипс, Шелл, Статойл и Тоталь) проводили сейсмические исследования Северного Каспия. Специалисты подсчитали, что есть 20% вероятности обнаружения коммерческих запасов нефти, но единственным способом удостовериться в этом является бурение разведочных скважин. В северной части выявлена крупная структура Кашаган, запасы которой могут превышать запасы месторождения Тенгиз.

Значительными перспективами обладают структуры Южного Каспия, возможно являющимися аналогами крупнейших месторождений Узень, Жетыбай, Дунга за счет увеличения толщин продуктивных горизонтов Мангышлака и продолжения Бузачинской группы структур и месторождений в море.

Однако освоение потенциальных ресурсов нефти и газа Республики осложнено двумя главными факторами, требующих значительных капитальных вложений.

Во-первых, почти 50% остаточных запасов разрабатываемых месторождений (393 млн.тонн из 789 млн.тонн) относятся к трудноизвлекаемым. При этом основная часть месторождений находится в стадии падающей добычи.

Во-вторых, основной объем прогнозных ресурсов (86%) нефти и газа связан с глубокозалегающими подсолевыми отложениями Прикаспийской впадины со сложными коллекторными свойствами пород и характеризующимися содержанием сероводорода и углекислого газа в попутном газе нефтей. При

этом около половины прогнозных ресурсов располагаются в акватории Каспия. Потенциальные возможности, открывающиеся с освоением морских месторождений Каспийского моря, требуют значительных инвестиций. По оценкам иностранных экспертов, суммарные капитальные затраты составят около 160 млрд.$, из которых около 10 млрд. $ на начальном этапе развития и оценки месторождений.Сейчас в нефтегазовый комплекс Казахстана на Каспии вложено западными компаниями свыше 2-х млрд. $.

Силами ОКИОКА предполагается в 2000 году начать буровые геологоразведочные работы.Хотелось бы, чтобы в следующем году был решен вопрос о статусе Каспийского моря, неопределенность в этом вопросе является сдерживающим фактором во вложение инвестиций в освоение Каспия. Хотя определенные сдвиги в этом вопросе есть. Подписано Соглашение между Казахстаном и Россией о разделе дна Каспийского моря по срединной линии.

После 2005-го года начнется промышленное освоение шельфа Каспийского моря. И тут остро встает другая проблема-проблема транспортировки каспийской нефти на международные рынки сбыта. В настоящее время экспорт нефти из Казахстана осуществляется в основном по нефтепроводу Атырау-Самара и далее по трубопроводной системе России, которая ограничивает (квотирует) объем казахстанского транзита. Богатейшие нефтяные запасы при самых благоприятных условиях их освоения не будут иметь ценность до тех пор, пока не будет обеспечена их беспрепятственная доставка до потребителей. Поэтому развитие экспортной трубопроводной системы Казахстана является одним из основных условий ускоренного развития нефтегазовой промышленности. В этой связи проект "Каспийского трубопроводного консорциума" является наиболее важным приоритетным республики. В начале этого года Казахстан выполнил свои обязательства, передав КТК свои активы протяженностью ... км в качестве взноса в уставной фонд Консорциума. На сегодняшний день практически закончены все подготовительные и проектно-изыскательские работы. Завершить трубопровод планируется через 2,5 года. Предполагается, что на это будет потрачено 2,5 млрд.$. Однако уже в ближайшие 7-10 лет существующие мощности трубопроводов, даже включая КТК, станут недостаточными для экспорта добываемой нефти, что будет сдерживать ее производство в Казахстане. И уже сегодня мы столкнулись с этим. Недавно была достигнута договоренность по проекту Баку-Джейхан с Турцией, Азербайджаном и Грузией о транспортировке нефти через порт Актау до порта Джейхан (Средиземное море). И самое главное, определен источник финансирования. Для реконструкции порта Актау компания "Шеврон" вложит порядка 80 млн. $. Будут реконструированы и проложены новые трубопроводы на территории Грузии и Азербайджана. Другим направлением транспортировки нефти является Восточное – через территорию до Китая. Китайская сторона в ходе недавнего визита Премьер-Министра РК подтвердила готовность продолжить работы по данному проекту. В настоящее время проект находится на стадии подготовки ТЭО. Не забываем мы и традиционный путь экспорта казахстанской нефти, через трубопроводную систему России. Проект по расширению пропускной способности трубопровода Атырау-Самара до 15 млн.тонн в год (сейчас его максимальная пропускная способность –12 млн.тонн/год) требует незначительного вложения капитала- порядка 22 млн. $ и является одним из наиболее реальных проектов. Как видно, мы в этом году определились по основным направлениям развития трубопроводного транспорта. Нет той разбросанности в направлениях строительства новых

трубопроводов, которая была еще в начале этого года. Увеличились объемы экспортных поставок нефти железнодорожным транспортом и морем. Особенно успешно работает по экспорту нефти этими путями СП "Тенизшевройл".

Нефтеперерабатывающие заводы РК также имеют планы по модернизации, реконструкции и расширению своих производств. Шымкентский НПЗ собственными силами завершает строительство комплекса каталитического крекинга, что позволит увеличить выход светлых нефтепродуктов на 1 млн.тонн. Крайне необходима реконструкция старейшего в республике Атырауского нефтеперерабатывающего завода.

Но это все проблемы и задачи, которые будет реализованы в недалеком будущем. Сегодня же, в связи с известными вам обстоятельствами на рынке нефти предприятия отрасли буквально борются за выживание, за получение хотя бы минимальной прибыли. Все вы знаете, что после кризисных явлений 1992 г., именно с этого момента началось существенное снижение объемов добычи нефти и газа, начиная с 1996 года, когда было добыто нефти вместе с газовым конденсатом 23,3 млн.тонн, наметился некоторый подъем отрасли. В 1997 г. добыто 25,7 млн.тонн , в этом году будет добыто порядка- 26 млн.тонн нефти. В целом по республике обеспечили прирост добычи ТШО, Карачаганакгазпром, Харрикейн-Кумколь –Мунай. Что связано с реализацией программы приватизации нефтегазовой отрасли. На сегодня, как вам известно, большинство предприятий отрасли приватизировано.

Падение мировых цен на нефть в этом году, почти в 2 раза, внесло свои коррективы в наметившуюся к улучшению ситуацию на нефтяном рынке Казахстана. Из-за кризиса в России, неконвертируемости украинской валюты практически свернут экспорт нефти в ближнее зарубежье. АК "Транснефть" в течении года из-за затоваренности своих приемных пунктов неоднократно ограничивало прием нефти на ПСП Самара. На грани остановки были многие месторождения республики (АО Мангистаумунайгаз, АО Узеньмунайгаз, АО Каражанбасмунайгаз и т.д.). На рынке нефтепродуктов республики, также как и в России, возникли осложения с реализацией нефтепродуктов. Нефтепродукты отечественного производства из-за непомерных налогов(48% от цены нефтепродуктов) стали неконкурентоспособными, из-за обвального цен в России, в сравнении с российскими. В этой ситуации Министерством были приняты все меры для защиты отечественного рынка нефти и нефтепродуктов, такие как, снижение себестоимости продукции по всем предприятиям отрасли, (снижение эксплуатационных затрат, стоимости оказываемых услуг, реструктуризация своих подразделений, оптимизация численности работающих и т.д.). С целью контроля и сокращения ввоза импортных нефтепродуктов были увеличены ставки налогов на ввозимую в республику нефтепродукты, усилен таможенный контроль за количеством ввезенного бензина и дизтоплива. Проводится работа по снижению налоговых ставок и различных сборов с бензина, дизтоплива. Уменьшены ставки акцизов на сырую нефть. Все это дало возможность в какой-то мере стабилизировать финансово-экономическое положение предприятий отрасли. Достигнуто, наконец, взаимопонимание в этих вопросах с Министерством финансов РК, Министерством доходов РК, фискальными органами республики.

Министерство работает с Минтопэнерго РФ в направлении увеличения квот на поставки нефти на дальнее зарубежье, увеличения объемов поставки нефти по взаимозамещению на Павлодарский НПЗ. В этом вопросе уже достигнуты положительные результаты, в 4 квартале этого года увеличены

квоты на транзит через ПСП Самара на дальнее и ближнее зарубежье, а также объемы поставок нефти на Павлодарский НПЗ. Думается, что и на следующий год мы достигнем взаимопонимания в этом вопросе с Минтопэнерго РФ.

В этой непростой ситуации предприятия отрасли продолжают работать, проводят определенную работу по модернизации и расширению своих мощностей. Иностранные компании, несмотря на все трудности, продолжают работать и вкладывать инвестиции в нефтегазовую отрасль Казахстана. Примеры того- Харрикейн-Кумколь-Мунай , САР и канадская комапания Трайтон Вуко (Каражанбасмунай). Несмотря на временные трудности, уменьшение прибыли они продолжают свою деятельность в республике.

Что же мы делаем на Каспии и как мы готовимся к возможным нефтяным разливам? Как вы знаете работы по бурению на море еще не начаты. Работы эти должны проводиться на специальных баржах для мелководья. Ее нужно унифицировать таким образом, чтобы она могла выдержать штормовые нагрузки летом и ледовые нагрузки зимой. Ее необходимо реконструировать для того, чтобы ОКИОК мог проводить буровые работы на основе принципа «нулевого выброса», что означает, что порода и соляные шламы из скважины не будут сбрасываться в Каспийское море. Они будут храниться на барже, а затем вывозиться на берег для переработки. Эти модификации и плюс множество других обеспечат ее безопасную работу на Каспии. В настоящее время ОКИОК завершает работы по изготовлению такой баржи. Это будет самая большая в мире полупогружная баржа.(5,5× 52×84 м) Для всех буровых работ необходима поддержка со стороны флотилии и судов. ОКИОК начала строительство двух новых судов-ледоколов в Финляндии и трех буксиров ледового класса в Голландии, а также три вездехода в Канаде. Эти необычные транспортные средства передвижения в любой момент будут наготове обеспечить эвакуацию персонала. Предусмотрена также круглосуточная поддержка авиацией на случай аварийных ситуаций.

В настоящее время ведутся работы по созданию необходимой инфраструктуры (морские сооружения, транспорт, береговые базы и т.д.)

На всех этапах планирования и при бурении скважины ОКИОК уделяет огромное внимание охране здоровья и безопасности своего персонала и местного населения, а также охране окружающей среды. Проводятся экологические исследования, обучение персонала, приобретается необходимое для этого оборудование (боны, нефтесборники). Имеющиеся транспортные средства позволят перенести необходимое оборудование в любое место Каспия, где могут быть разливы. Предполагается, что нефть Каспия по качеству будет тенгизского типа. В случае разлива, как показывает компьютерное моделирование, 70% ее почти сразу испарится., и оставшаяся нефть испарится в течение 4-х дней, поэтому вряд ли нефть из Кашагана достигнет чувствительной прибрежной зоны. С помощью компьютерного моделирования можно будет прогнозировать куда нефть, вероятнее всего, перенесется по течению, поэтому ОКИОК сможет развернуть свои боны таким образом, чтобы предотвратить движение нефти в самые экологически чувствительные зоны, такие как , например, заросли тростника. Возможно, в случае большого разлива нефти, разлитая нефть, после эвакуации персонала будет подожжена, чтобы уменьшить последующее воздействие на окружающую среду Каспия. Прежде чем начнется бурение ОКИОК обеспечит введение в действие всех процедур для контроля открытого фонтана или утечки нефти, а также организует обучение и тренировку своего персонала.

Кроме того, ОКИОК получит и будет поддерживать значительные страховые полисы на период буровых работ, включая страхование от ущерба имущества третьей стороны, телесных повреждений и загрязнения, а также расходы на очистительные работы.

Надеемся, что мы не допустим значительных нефтяных разливов на Каспии, пожелаем успешной работы ОКИОК в освоении Каспия, а в случае разливов будут приняты все необходимые меры.

Благодарю за внимание.

III. Международные конвенции и имеющийся опыт крупных разливов нефти

ОБЗОР ПОСЛЕДНИХ ФАКТОВ РАЗЛИВА НЕФТИ

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АННОТАЦИЯ

Важность наличия действенных общенациональных планов действий на случай возникновения непредвиденных ситуаций можно проиллюстрировать на примере трех недавних разливов нефти нефтяными танкерами в акватории Японии, в Малаккском проливе и в Персидском заливе. Ниже обобщены основные уроки каждого из этих разливов, а также рекомендуемые меры. Кроме того, отмечается важность ратификации международных конвенций о компенсациях.

РАЗЛИВ НЕФТИ НА ТАНКЕРЕ «НАХОДКА»

2 января 1997 года на российском танкере «НАХОДКА» (дедвейт 19 684 т), следовавшем из порта Шанхай (КНР) в порт Петропавловск (Российская Федерация) с партией жидкого топлива средней вязкости весом 19 тыс. тонн на борту, произошла авария в условиях сильного волнения в Японском море. В результате аварии произошел разрыв танкера на две секции, что привело к разливу примерно 6200 тонн нефтепродукта. Это происшествие явилось суровым испытанием действующих в Японии процедур реагирования на разливы нефти.

В результате разлива нефтепродукта образовались весьма стабильные и стойкие эмульсии типа «вода в нефти», устойчивые к физическому разложению в результате воздействия морских волн, которые привели к увеличению объема загрязняющего вещества в 4-5 раз, поскольку содержание воды в эмульсиях составило более 80%. Благодаря высокой стойкости нефтяной эмульсии нефтяное пятно оказалось способно покрыть расстояние более 1000 километров, загрязнив побережье десяти провинций страны.

Агентство морской безопасности (MSA) является ведущим государственным органом, ответственным за восстановительные и очистные работы, однако при этом оно обращается к владельцу танкера за оборудованием и рабочей силой в качестве дополнения к имеющимся у него собственным средствам. С целью организации очистных работ с привлечением коммерческих подрядчиков был подписан договор от имени владельца танкера с Японским

центром предупреждения бедствий на море (MDPC), который частично субсидируется государством. Кроме того, Нефтегазовой ассоциацией Японии (PAJ) были предоставлены береговые боновые заграждения, нефтесборщики, переносные баки для хранения нефтепродуктов и целый ряд прошедших специальную подготовку операторов. Предприятия по производству электроэнергии обеспечили боновые заграждения протяженностью в несколько километров с целью защиты станций водозабора, обслуживающих семь атомных электростанций, расположенных на территории пострадавшего района.

К работам по сбору нефти было привлечено более 80 судов MSA и сил самообороны Японии. В ответ на просьбу правительства Японии об оказании помощи Министерство морского флота России (ММФ) направило на помощь MSA четыре судна, оснащенных системами сбора нефти. Сравнительно эффективными средствами сбора высоковязких нефтяных эмульсий с морской поверхности с помощью специальных бадей оказались плавучие краны, зафрахтованные MDPC и руководством префектур. Кроме того, для ручного сбора нефти в бочки было мобилизовано несколько сотен рыболовецких судов из восьми префектур.

Очистка береговой полосы (преимущественно ручными методами) была организована местными рыболовецкими объединениями, руководством префектур и муниципальными властями. Большинство выброшенных на берег нефтепродуктов было удалено уже к середине февраля. В пяти провинциях, больше других пострадавших от загрязнения, на очистку береговой полосы было затрачено более 500 тыс. человеко-дней. Примерно половина этих трудозатрат приходится на помощь, оказанную добровольцами из всех регионов Японии. Общее количество собранных отходов составило ориентировочно 50 тыс. тонн. Доставка этих отходов с целью их ликвидации и утилизации осуществлялась автомобильным, железнодорожным и морским транспортом на соответствующие промышленные объекты (в основном на станции по сжиганию отходов), расположенные по всей территории Японии.

Затраты, убытки и компенсация

Япония является одной из сторон, подписавших в 1992 году Конвенцию о гражданской ответственности (CLC) и Конвенцию об учреждении компенсационного фонда (IOPC). Однако в связи с тем, что Российской Федерацией — государством флага танкера «НАХОДКА» — подписана Конвенция о гражданской ответственности 1969 года, предел ответственности владельца танкера регулируется этой последней Конвенцией. Этот предел составляет около 1,6 млн. специальных прав заимствования (SDR) (около 2,3 млн. долл. США). Дополнительная компенсация выплачивается Международными фондами компенсации за нефтяные загрязнения (Фонд 1971 г. и Фонд 1992 г.) на общую сумму в размере до 135 млн. SDR (около 192 млн. долл. США), включая компенсацию, выплачиваемую владельцем танкера. Предварительные оценки размеров потенциальных исков свидетельствуют о том, что существует вероятность превышения верхнего предела Фонда 1992 года, в результате чего Фондами 1991 и 1992 года на данный момент установлен платежный лимит в размере 60% от суммы любых обоснованных исков.

Конвенциями о гражданской ответственности и Конвенциями о компенсационном фонде предусмотрена выплата компенсации за необходимые меры, принимаемые с целью предотвращения или сведения к минимуму ущерба в результате загрязнения окружающей среды. При этом критерии, которые берутся за основу при вынесении решения об обоснованности иска, носят преимущественно технический характер. Например, масштабы мер реагирования должны быть пропорциональны масштабам разлива, ожидаемому уровню успеха и способности осуществлять эффективное управление и руководство работами.

Проблемы, возникающие в процессе реагирования на разливы нефти

1. Характеристики и поведение нефтяного пятна в результате аварии на танкере «НАХОДКА» определили характер тактических мер по сбору нефти с морской поверхности. В результате эмульгирования жидкий нефтепродукт был преобразован в полужидкие комья, сбор которых можно было осуществить с помощью плавучих кранов, оснащенных специальными бадьями, более эффективно и с меньшими затратами, чем с помощью традиционных боновых заграждений и нефтесборщиков. При этом большие объемы воды, собранной вместе с нефтяными комьями, можно было легко отфильтровать и сцедить.

2. Работы, выполнявшиеся российскими судами, предоставленными для оказания помощи в проведении сбора нефти с водной поверхности, осуществлялись неудовлетворительно. В качестве наиболее существенных среди целого ряда причин можно назвать отсутствие опыта работы в условиях акватории Японского моря, а также отсутствие опыта совместных действий с государственными органами Японии. В других странах, которые в большей степени следуют принципам тесного международного сотрудничества, например, в странах Балтии, часто проводятся учения по преодолению таких неизбежных препятствий в работе, как языковые барьеры и различия в организационных и материально-технических требованиях, рабочих системах и структурах управления.

3. В феврале, на том этапе, когда зона распространения нефти в акватории Японского моря стала весьма обширной, к операциям по ликвидации последствий нефтяного разлива на танкере «НАХОДКА» было привлечено свыше 100 морских патрульных судов и судов-нефтесборщиков, а также несколько сотен рыболовецких судов. Вряд ли приходится надеяться на привлечение такого количества судов в таких размерах в рамках обычных мер по предотвращению загрязнения нефтью. Кроме того, даже такому количеству судов не удалось в достаточной степени снизить уровень загрязнения нефтью береговой полосы.

4. Залогом эффективных мер реагирования является хорошая организация. Несмотря на наличие большого количества оборудования и материалов для ликвидации последствий разлива, имеющиеся ресурсы не были использованы в полной мере с достаточной степенью согласованности при соблюдении общего принципа единоначалия для реализации последовательного стратегического плана. Во многих провинциях очистные работы велись отдельно от остальных практически без каких бы то ни было попыток согласовать действия с соседними провинциями или с MDPC. Для решения этой проблемы в будущем было бы полезно иметь единый общенациональный план действий в непредвиденных ситуациях, предусматривающий меры реагирования на разливы нефти на всех уровнях.

5. Работы по очистке береговой полосы были хорошо организованы на местах, что позволило успешно и оперативно удалить большинство загрязняющих веществ из приливно-отливной зоны и собрать их во временные ямы для хранения. Однако отсутствие оперативных планов необходимого уровня привело к недостатку временных хранилищ, а также к накладкам в работе по обработке и транспортировке собранных отходов. Залогом экономической эффективности работ по очистке береговой полосы, транспортировке нефти и ее ликвидации является сведение к минимуму числа этапов обработки собранных нефтесодержащих отходов.

6. В случае происшествия с танкером «НАХОДКА» в распоряжении руководителей очистных работ имелось слишком мало возможных вариантов ликвидации отходов. Практически отсутствовала возможность провести тендер с участием претендентов из числа подрядных организаций по ликвидации отходов. Хотя в период хранения и принимались все меры к тому, чтобы отделять упакованные в мешки отходы от неупакованных, сепарацию и утилизацию свободной нефти из неупакованных отходов так и не удалось осуществить. При рассмотрении общенациональных планов действий в непредвиденных ситуациях необходимо принимать меры к тому, чтобы определять более экономически целесообразные варианты сепарации нефтесодержащих отходов и утилизации собранной нефти.

РАЗЛИВ НЕФТИ НА ТАНКЕРЕ «ЭВОИКОС»

15 октября 1997 года при прохождении Сингапурского пролива произошло столкновение танкера «ЭВОИКОС» (водоизмещением 80 823 длинных тонн) и танкера «ОРАПИН ГЛОБАЛ» (водоизмещением 138 037 длинных тонн). В результате столкновения был нанесен серьезный ущерб трем грузовым танкам на танкере «ЭВОИКОС» с практически одновременным разливом около 29 тыс. тонн тяжелого жидкого топлива. К 19 октября вязкость нефти значительно возросла за счет естественного изменения в составе нефти под воздействием погодных условий, а благодаря ветрам и течениям нефтяные пятна стали перемещаться из Сингапурского пролива в Малаккский пролив. В течение последующих недель нефтяные пятна продолжали перемещаться в северо-западном направлении с распространением на морской поверхности площадью свыше 3 тыс. кв. километров, после чего нефть наконец достигла берега в отдельных местах на 40-километровой полосе побережья провинции Селангор (Малайзия).

На момент разлива нефти на танкере «ЭВОИКОС» Сингапур являлся стороной только Конвенции о гражданской ответственности 1969 года (CLC-69), согласно которой предел ответственности судовладельца (страховщика) составлял около 13 млн. долл. США. Однако разлив коснулся также и территориальных вод Малайзии и Индонезии, а поскольку эти страны, помимо CLC-69, являлись также сторонами Конвенции о компенсационном фонде 1971 года (Фонд-71), то существовала возможность получения ими дополнительной компенсации в размере до предусмотренного Фондом-71 предела.

Меры реагирования на разлив нефти

Работы по очистке возглавило Морское и портовое управление Сингапура (MPA), которое уделило первоочередное внимание распылению диспергирующих веществ над пораженными участками морской поверхности с последующей локализацией и сбором плавающей на поверхности нефти. По имеющимся сведениям, на поверхности нефтяных пятен было распылено

более 500 тонн диспергирующих веществ, в основном с судов. Теоретически, в случае применения при оптимальном соотношении диспергатора к нефти (1 : 20), данного объема должно было быть достаточно для диспергирования около 10 тыс. тонн нефти. Однако пробное применение диспергирующих веществ, проведенное в течение 4-го дня после разлива, показало, что нефть стала весьма вязкой, а диспергаторы утратили эффективность. Хотя после этой пробы распыление с вертолетов было прекращено, применение диспергирующих веществ с морских судов продолжалось.

Последующим попыткам сбора нефти в море помешало не столько отсутствие соответствующего оборудования, сколько отсутствие достаточного уровня материально-технического обеспечения нефтесборщиков и боновых заградительных средств. Несмотря на безотлагательную мобилизацию более чем пятнадцати тяжелых судов-нефтесборщиков и выделение достаточного количества боновых заграждений для локализации нефти, в рабочем состоянии находилось лишь ограниченное число полностью функционально пригодных систем.

Как только удалось ликвидировать непосредственную угрозу для Сингапура, основное внимание было перенесено на очистку береговой полосы на небольших южных островках, которые уже пострадали от нефтяного загрязнения. В общей сложности от загрязнения пострадала прибрежная полоса протяженностью около 40 километров, в том числе острова курортно-туристической зоны, промышленные районы и военные объекты. От загрязнения на береговой полосе пострадали скалы, валуны, волноломы, песчаные пляжи и мангровые болота. При этом по целому ряду причин решающее значение придавалось созданию реальной системы приоритетности выполнения очистных работ.

Учитывая возможные масштабы очистных работ, выражалась озабоченность по поводу достаточности имеющихся размеров компенсации. В соответствии с условиями CLC-69, на все аспекты очистных работ и ликвидации убытков судовладельцем и страховщиком была выделена максимальная сумма в размере 13 млн. долл. США, однако значительные суммы уже были израсходованы на выполнение работ в море, и при этом могли возникнуть дополнительные расходы на очистные работы и ликвидацию убытков в Малайзии и Индонезии, что повлекло бы за собой дальнейшее снижение предусмотренной суммы компенсации для Сингапура. Как уже отмечалось выше, на момент разлива Малайзией и Индонезией была подписана Конвенция о компенсационном фонде 1971 года, а это означало, что истцы в этих странах имеют право на дополнительную компенсацию согласно условиям Международной конвенции об учреждении фонда компенсации за нефтяные загрязнения (IOPC) 1971 года в том случае, если в результате недостатка средств на оплату их обоснованных исков будет превышен и пропорционально перерассчитан предел, предусмотренный Конвенцией CLC-69.

Наиболее первоочередными мероприятиями были признаны работы по очистке культурно-оздоровительной пляжной зоны в Сингапуре. Для очистки песчаных пляжей и волноломов применялись методы ручной и механической очистки, а также диспергирующие вещества и насосы для морской воды. Сильно пострадавшие от нефтяного загрязнения волноломы в промышленных зонах и на островах, где расположены военные объекты, в основном находились в недоступных местах, закрытых для населения. Учитывая высокую скорость стабилизации нефти, рекомендовалось производить очистку только в тех зонах, где существует вероятность контакта с судами или персоналом, обеспечив возможность для естественного разложения на всех остальных участках этой зоны, уже подвергавшейся промышленному загрязнению. Особым случаем при этом являлись мангровые заросли, которые также отмечаются на островах, относящихся к промышленной и военной зоне, поскольку установленные наукой данные вполне определенно свидетельствуют о том, что необходимо давать им возможность естественного восстановления в связи с высокой вероятностью усугубления нанесенного ущерба в результате попыток очистки. От нефтяного загрязнения пострадал один участок вновь образованного мангрового болота (которое заменило собой мангровые заросли, уничтоженные в результате коммерческого освоения территории), однако на сегодняшний день перспективы выживания молодых насаждений представляются весьма неплохими.

Нет никакого сомнения в том, что проведению очистных работ на береговой полосе Сингапурских островов мешал недостаток выделенных средств. Если бы у Сингапура имелась возможность воспользоваться дополнительной компенсацией за счет Фонда IOPC, вполне вероятно, что очистные работы были бы проведены в более короткие сроки и были бы в большей степени приемлемы для всех заинтересованных сторон.

К тому времени, когда нефтяные пятна достигли акватории Малайзии в Малаккском проливе, было установлено, что химические диспергаторы больше не оказывают воздействие на нефть. При этом Морской департамент Малайзии (MMD), который взял на себя руководство морскими операциями по ликвидации последствий разлива, удалось убедить в необходимости следовать стратегии постоянного мониторинга и наблюдения с помощью вертолетов и морских судов, а также привлечения достаточных резервных ресурсов для защиты тех уязвимых районов побережья, которым был присвоен самый высокий приоритет. Была обеспечена готовность некоторых видов оборудования для локализации и сбора нефти с целью проведения береговых работ в непосредственной близости от береговой полосы, а также привлечены некоторые резервные средства очистки с обеспечением их готовности к мерам по ликвидации любых воздействий на прибрежную полосу.

Координацию очистных работ на берегу осуществлял Департамент охраны окружающей среды Малайзии при поддержке со стороны MMD. Отдельными

районными органами власти провинции Селангор были организованы работы по ручному удалению нефти и нефтесодержащих материалов на песчаных берегах, а также по подготовке к очистке каменистых и бетонированных участков мола. Были учтены данные научных исследований в отношении пострадавших мангровых болот, где было решено обеспечить возможность для разложения нефти под влиянием погодных условий и для естественного восстановления мангровых зарослей.

Выводы

- Нефть, разлив которой произошел в результате аварии на танкере «ЭВОИКОС», оставалась на поверхности воды в узком проливе в течение 2,5 месяцев по причине своей высокой вязкости и отсутствия волнения на море.

- Высокая вязкость нефти явилась главным фактором, ограничивающим действенность диспергирующих веществ.

- Попыткам сбора нефти с помощью боновых заграждений и нефтесборщиков поначалу препятствовало отсутствие барж для хранения собранной нефти. К тому моменту, когда было обеспечено достаточное количество барж, основная часть нефти уже была вынесена из акватории Сингапура и распространилась на значительной площади.

- Государственные органы Малайзии успешно придерживались реалистичной стратегии мониторинга за сносимой нефтью и защиты наиболее уязвимых ресурсов.

- Поскольку компенсации, предусмотренной в соответствии с условиями CLC-69, может быть недостаточно для оплаты всех обоснованных исков, существует вероятность получения истцами в Сингапуре лишь частичной компенсации, поскольку на момент аварии на танкере «ЭВОИКОС» Сингапур не ратифицировал Конвенцию «Фонд-71». В настоящее время Сингапур ратифицировал и CLC-92 и Фонд-92, которые вступают в силу с 31 декабря 1998 года и предусматривают более высокие уровни компенсации и более широкую сферу применения.

РАЗЛИВ НЕФТИ НА БАРЖЕ «ПОНТУН 300»

7 января 1998 года во время буксировки морской баржи «ПОНТУН 300» у берегов Объединенных Арабских Эмиратов (ОАЭ) произошел разлив промежуточного жидкого топлива. По имеющимся сведениям, баржа затонула при захлестывании волной, образовавшейся в результате сильного порывистого ветра («шамаль»), на глубине 21 метр. Хотя данный тип барж рассчитан на перевозку палубных грузов, эта незастрахованная баржа совершала рейс с грузом промежуточного жидкого топлива на борту, помещенного в 24 цистерны плавучести. За последние несколько лет в нарушение международного нефтяного эмбарго были налажены регулярные торговые перевозки нефти из северного района Персидского залива на баржах, владельцы которых остаются не установленными.

Работы по спасению баржи «ПОНТУН 300» и ее оставшегося груза взял на себя местный подрядчик. Спасательные операции оказались сложными по причине изменений конструкции внутренних переборок, которые внес ранее владелец

баржи. После четырех попыток 6 февраля баржу наконец удалось поднять на поверхность кверху дном и отбуксировать в порт. После удаления остатков нефти баржа была отбуксирована в открытое море на расстояние 17 морских миль и затоплена.

Меры реагирования на разлив нефти

В случае значительного разлива нефти, в результате которого страдает не один, а несколько Эмиратов, общее руководство берет на себя Федеральное агентство по охране окружающей среды (FEA), которое назначает комитет по реагированию и начальника штаба непосредственно на месте происшествия. Однако при этом не имеется общенационального плана действий на случай возникновения непредвиденных обстоятельств, в котором предусматривалась бы система подчиненности или оперативный порядок действий, а у самого FEA отсутствует какое бы то ни было специальное оборудование для ликвидации последствий разливов нефти, поэтому это агентство привлекает средства, имеющиеся у портовых властей, службы пограничной и береговой охраны (FCGS), а также у министерства нефти.

Хотя FEA и несет ответственность за борьбу с серьезными разливами нефти, на первых порах были приняты лишь весьма незначительные меры по очистке вынесенной на берег нефти по причине неопределенности в отношении компенсации. Не удалось установить, кто является владельцем баржи и страховщиком на случай загрязнения окружающей среды. Это означало, что в соответствии с условиями Конвенции о гражданской ответственности 1969 года (CLC-69) никакая компенсация не предусматривалась. При этом применялись условия фонда компенсации за нефтяные загрязнения (IOPC) 1971 года, но он учреждается только для выплаты компенсации, а не для оплаты привлекаемых ресурсов и рабочей силы. Таким образом, государственному учреждению или частной организации было необходимо вначале обеспечить наличие необходимых договорных обязательств, из которых вытекали бы финансовые обязательства, а уж затем притязать на компенсацию из средств Фонда IOPC.

Инициативу взяла на себя небольшая группа очистки из состава Национальной нефтяной компании Абу-Даби (ADNOC), которая приступила к работам по сбору нефти с берега. Остальные подрядчики для выполнения очистных работ были назначены FEA позднее. ADNOC удалось собрать около 60 тонн нефти, которая была захоронена на специальной свалке для отходов. Ручная очистка береговой полосы началась 12 января силами примерно 100 рабочих с использованием землеройной техники. Однако координации и управлению очистными операциями со стороны FEA препятствовал крайний дефицит ресурсов и финансовых средств. По этой причине финансируемая FEA очистка пляжа была перенесена на конец января.

По истечении двух месяцев был привлечен местных подрядчик по очистным работам, который взял на себя завершение невыполненного объема работ по очистке пляжа с расчетом на получение компенсации из средств Фонда IOPC 1971 года. Экспертами Фонда IOPC была разработана программа ликвидации неубранной нефти в соответствии с техническими критериями Фонда, которая была согласована с FEA, что позволило в максимальной степени повысить вероятность полного возмещения затрат по условиям Фонда-71.

Выводы

- Хотя ОАЭ и ратифицировали Конвенцию CLC-69, в отношении происшествия с баржей «ПОНТУН 300» действовали лишь положения Фонда-71, поскольку в этом случае не удалось установить, кто является владельцем баржи и страховщиком на случай загрязнения окружающей среды.

- Проведению мероприятий по ликвидации последствий разлива нефти мешало отсутствие действенного общегосударственного плана.

- Очистные работы были прерваны по причине отсутствия государственных средств, но вновь возобновлены через семь недель, когда было найдено удачное решение по продолжению очистки, предполагающее тесное сотрудничество между государственными органами и коммерческим подрядчиком по выполнению очистных работ с привлечением средств Фонда IOPC.

- В настоящее время ОАЭ ратифицировали Конвенции CLC-92 и Фонд-92, которые вступают в силу с 19 ноября 1998 года.

Инцидент с разливом нефти на танкере Находка

Краткий доклад

Рано утром 2 января 1997 года крупный российский танкер НАХОДКА грузоподъемностью 13,175 тонн внезапно развалился на две части при пересечении Японского моря, который из Шанхая в Петропавловск-Камчатский. Форштевень судна погрузился сразу, в то время как носовая часть судна дрейфовала в течение пяти дней и была выброшена волнами на берег недалеко от города Микуни префектуры Фукуй, Япония.

Все члены команды (31 человек), за исключением капитана, были спасены Спасательным Отделом Японского Морского Управления и Силами Морской Самообороны, однако тяжелый мазут класса С сразу стал вытекать из грузовых танков танкера, расположенных в поврежденной части. Была проведена оценка, что из всего груза объемом 19,000 kl объем разлитой нефти составлял 6,240 kl, которая дрейфовала в течение 10 дней в естественных условиях моря, а при наступлении штормов она достигла береговых линий девяти прибрежных префектур между Шиманом на западе и Акита на северо-востоке. Между тем в танкере оставался большой объем мазута, и продолжалась утечка нефти с носовой части танкера, которая села на мель на берегу к северу от города Микуни.

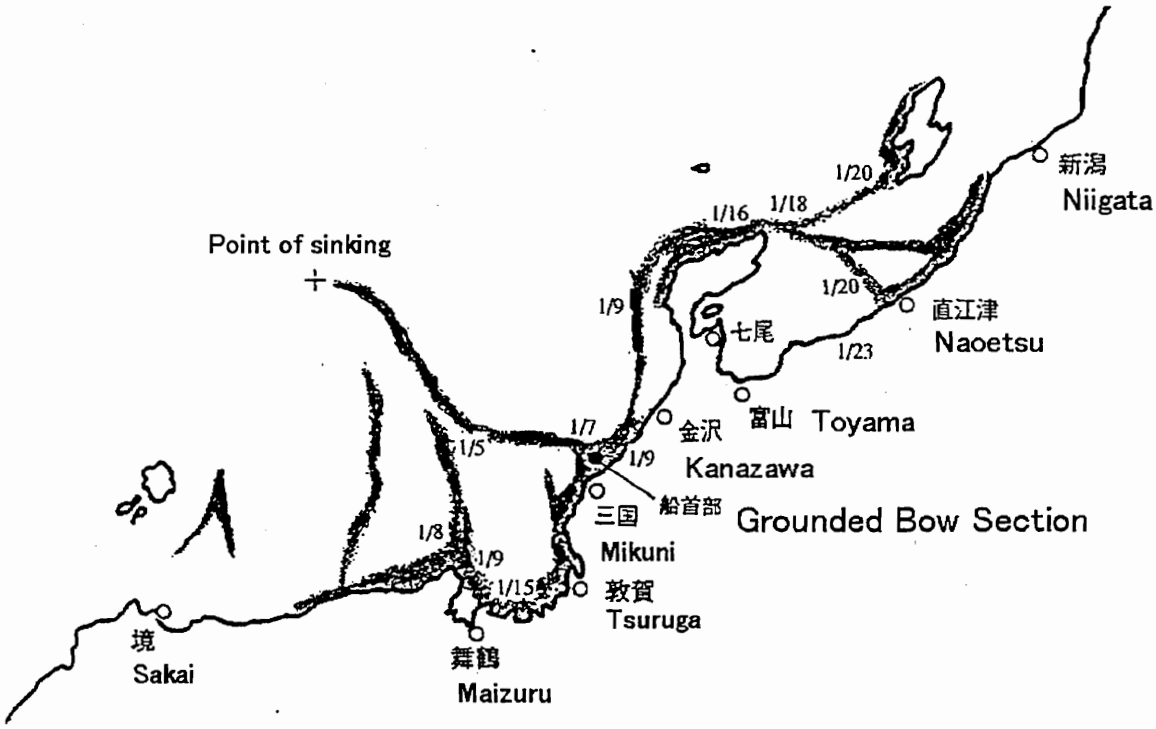
Для сбора разлитой нефти применялись меры вместе с разного рода оборудования и в общей сложности более миллиона людей (включая добровольцев) пытались сделать свой вклад. Шаг за шагом была собрана большая часть разлитой нефти и размещена во временных отстойниках и бочках для последующего сбора и транспортировки в близлежащий порт. Объем собранной нефти превысил 40 000 тонн, что эквивалентно объему 220 000бочек. Собранную нефть разместили в 18 нефтехранилищах, разбросанных по всей стране, что, в общем, составило 65 сосудов и бесчисленное количество цистерн, а затем сожгли. Но вскоре в этих нефтехранилищах стал наступать процесс насыщения, так что пришлось приостановить транспортировку, поэтому очищение данной площади заняло несколько месяцев (до середины июля).

Я хочу обратить внимание на роль, которую сыграл Японский центр по предотвращению и профилактике ЧС на море (МДРС) в данной операции, и как он отреагировал, а также на то, какие особые методы и аппаратура применялись на данном участке, от применения которых отказались в других странах

КОНТРАКТ О ПЕРВОНАЧАЛЬНОМ СБОРЕ НЕФТИ

5 января в 17:00 МДРС получил от заказчика агента Находки контракт, и сразу же отреагировал, отправив свою команду на место аварии. Определенная контрактом работа сильно изменилась, включая сбор разлитой нефти на ранней стадии , морской поверхности и прибрежной полосе, подготовку способов транспортировки и нефтехранилища , размещение используемой аппаратуры и оборудования, а также регистрацию процессуальных норм. Это была самая крупная операция такого рода по своему масштабу, которая когда-либо была предпринята в Японии.

К тому же МДРС получили заказ от Правительства, представленного Управлением Морской безопасности (MSA), сосредоточившись на удалении оставшейся нефти из носовой части танкера. Эта работа по удалению нефти проводилась одновременно на море с нефтесборников и на берегу путем строительства временного пирса к севшей на мель корме танкера.



РЕАГИРОВАНИЕ НА РАННЕЙ СТАДИИ РАЗЛИВА

МДРС открыл 7 января региональное представительство по мерам противодействия (LSO) в компании Фукуй Футо (FUKUI FUTO Co), в порту Фукут, города Микуни для координации мер по реагированию на ранней стадии. На этой стадии была поставлена первоочередная задача - минимизация загрязнения прибрежной полосы, так что предпринимались первые шаги для сбора разлитой нефти с берега обратно в море. Сюда входило разнообразие мер борьбы в ЧС, например, нанесение на карту и эксплуатация ряда кораблей , автоцистерн с всасывающими шлангами, строительство условных амбаров для хранения собранной нефти, страхование очистных сооружений и транспортировки, ведения переговоров о возможных инцидентах и соответствующих действий.

Телефонные линии были перегружены из-за постоянных запросов из внешнего мира, иногда истеричных и назойливых расспросов и наведения справок со стороны средств массовой информации и даже на горячих линиях, проведенных для нашего пользования, были помехи. Страховые инспектора, опытные специалисты по спасению и поддержке судна, операторы передвижных насосов и другого оборудования для сбора нефти и экспертов других отраслей вместе с государственными чиновниками из управления морской безопасности и префектуры Фукуй, все они собрались в LSO. LSO

работало слаженно и организованно, и каждый знал что с каждым днем мы работаем более сплоченно.

СБОР НЕФТЯНОГО ПЯТНА

В первую очередь приоритет был разделен для сбора разлитой на море нефти, а также для сбора отфильтрованной нефти на берегу, для которой существовала возможность повторного разлива. Необходимо было спланировать систематическую работу по сбору нефти, охватывая отбор методики сбора, подготовки безопасного места хранения, транспортировки и окончательной очистки. Нефть, разлитая на морской поверхности, выветривалась, сгущалась и рассеивалась, так что система контейнерной сборки, баржа с загрузочным ковшом для улавливания нефти могут больше подойти, чем глиссеры-нефтесборщики. Что касается нефтезадерживающих баков, они не приемлемы в штормовых условиях, так что было принято решение не применять их, за исключением ограниченной морской поверхности.

СБОР НЕФТИ НА МОРЕ-

Всем известно, что в зимнее время на Японском море очень тяжело проводить работы по сбору нефти на море из-за судовых штормовых условий, высота волны может превышать 8 м, но после шторма наступает от 2 до 4-5 дней штиля. К счастью с 8 по 13 января в течение 6 дней установилась спокойная погода даже на море. Думали, что в период штиля (6 дней) эффективнее будет использовать методику "баржи с загрузочным ковшом для улавливания нефти" при большом объеме работ по сбору нефти.
С 17 января рабочая площадь была разделена на 4 блока, и 4 типа рабочих суден состояли из 2-х "Барж с загрузочным ковшом", RO-нефтесборщики (нефтесборщики сливного типа), установленных на океанском буксире кото-мару", "многоэкскаваторное судно, оборудованное циклонным глиссерным устройством для удаления с поверхности воды нефти", "нефтесборщик скважинного типа" были распределены в каждом блоке. Коэффициент критичности содержал точную информацию по проведению разлитой нефти, включая участки дрейфа.

БАРЖА С ЗАГРУЗОЧНЫМ КОВШОМ ДЛЯ УЛАВЛИВАНИЯ НЕФТИ

Исходя из прошлого опыта в Японии считают, что данный тип нефтесборщиков наиболее подходит для сбора высоководной нефти, особенно "серой" нефти (moused oil), так что МДРС распорядился нанять эти баржи у спасательных компаний на ранней стадии операции по сбору нефти. Однако спасательные компании не смогли отреагировать на запрос на данный момент, частично из-за того. Что страховые компании не гарантировали комиссионных за мобилизацию, а также из-за того, что это случилось после новогодних праздников. Страховка за загрязнение не гарантировала возмещение мобилизационных расходов за нефтесборочные работы, и все расходы велись за счет владельца судна, что означало бы для него дополнительный риск. 9 января первая нефтесборочная баржа с загрузочным ковшом "Kotobuki" была предоставлена компанией по хранению нефти , а МДРС выдал заказ компании "Kotobuki" на проведение операции по сбору нефти. Позднее аналогичный нефтесборщик "Daiko" также был предоставлен для проведения операции. Мы проинформировали страховую компанию об этом и предложили им также привлечь эту баржу "Daiko" , но от дальнейшей фрахтовки судна отказались. Но после того как "Kotobuki" сыграло огромную роль и в течение 2-х дней (12 и 13 января) собрало 450 тонн нефти, то стало понятно насколько эффективны нефтесборщики такого типа для сбора сгущенной нефти и пришли к соглашению о привлечении подобных суден. Стали применять еще 4 нефтесборщика с загрузочными ковшами, в результате чего было собрано около 1000 тонн мазута, (включая 530 тонн, собранных " Kotobuki") в общем, пятью баржами такого типа.

Что касается баржи "Kotobuki", то она прибыла в порт Микуни 11 января и собирала нефть 12 и 13 января, Для повышения скорости сбора команда этой баржи пыталась

применять нефтезадерживающие боны формы J с рыболовным патрульным судном с другой стороны , но это было безуспешно, так как рыболовное патрульное судно не знало, как управлять нефтезадерживающими бонами и использовала только грейферные ковши, и собрала только 530 тонн мазута.

ГЛИССЕРЫ-НЕФТЕСБОРЩИКИ

В данном инциденте использовались два типа нефтесборщиков, сливные и дисковые, принадлежащие Японской Нефтяной Ассоциации. Но была обнаружена невозможность их использования на море из-за штормов на море, а также их использования на прибрежной полосе. Однако, из-за того, что волны мешали их эффективному использованию, разлитая нефть не попадала в нефтесборник из-за того, что нефть превращалась в тяжелые сгустки, поэтому они отделялись от корпуса, а затем использовались для откачки нефти с береговой линии в металлические бочки или в Фас танки (мобильные емкости для сбора). Несмотря на их неоднократное использование, данная работа дала благоприятные результаты и помогла завершить операции по очищению от пятна в короткий срок.

DESMI 250 была установлена на буксире Naruto-maru для сбора разлитой нефти вместе с нефтезадерживающим боном формы J, использованным после тщательной подготовки 13 января, но данный тип глиссера работал не совсем эффективно, так как разлитая нефть превращалась в замерзшие сгустки и нельзя было провести процесс гладкого сжижения.
Три других глиссера- нефтесборщика прибыли из России, и была сделана попытка по сбору нефти в заливе Вакаса с поддерживающим судном, присланным из Японии. Но опять не было хороших результатов, так как они относились к вышеназванным видам нефтесборщиков.

СБОР НЕФТИ НА БЕРЕГОВОЙ ЛИНИИ

АВТОЦИСТЕРНЫ ДЛЯ ОТКАЧКИ РАЗЛИТОЙ НЕФТИ

Автоцистерны использовались для откачки разлитой нефти, намытой на прибрежную полосу и транспортируемую в амбары для хранения нефти. Основными проблемами, подлежащими рассмотрению, являлись частота наплыва на берег и обратно в море между загрязненной береговой полосой и амбаром для хранения, и сколько нефти можно было перевозить за один рейс.

Было два варианта для проведения работ: один вариант - откачка нефти напрямую с береговой полосы, а другой - откачивать через нефтяные бочки и фас танки. Также использовались два типа автоцистерн: одна - с большим объемом закачки, а другая - с большой грузоподъемностью, так что необходимо было использовать максимально возможную комбинацию для достижения высокой эффективности.

Необходимо отметить, что мы не всегда достигали высокой эффективности, так это была первая практика, когда использовали такую технику для сбора разлитой нефти, и во многих случаях из-за того, что размеры закачивающего шланга не всегда подходили к автоцистернам возникали проблемы. Также мы столкнулись с другими проблемами, связанными с размещением и предоставлением питания для водителей.

Несмотря на все эти трудности при завершении работ уже около 600 автоцистерн были привлечены для этой операции, и около 5,800 кл нефти был транспортировано в амбары для хранения. И это представляло довольно таки впечатляющую картину, когда столько машин было собрано на берегу для откачки нефти . В результате данного опыта были разработаны следующие рекомендации:

перевозить собранную нефть только после сепарации от воды прямо на месте

использовать два разных вида автоцистерн для откачки нефти одновременно на одной линии (автоцистерны с большой мощностью откачки и автоцистерны с большой

грузоподъемностью)

соединить береговую линию с дорогой виниловыми трубами и использовать обычные шланги для откачки

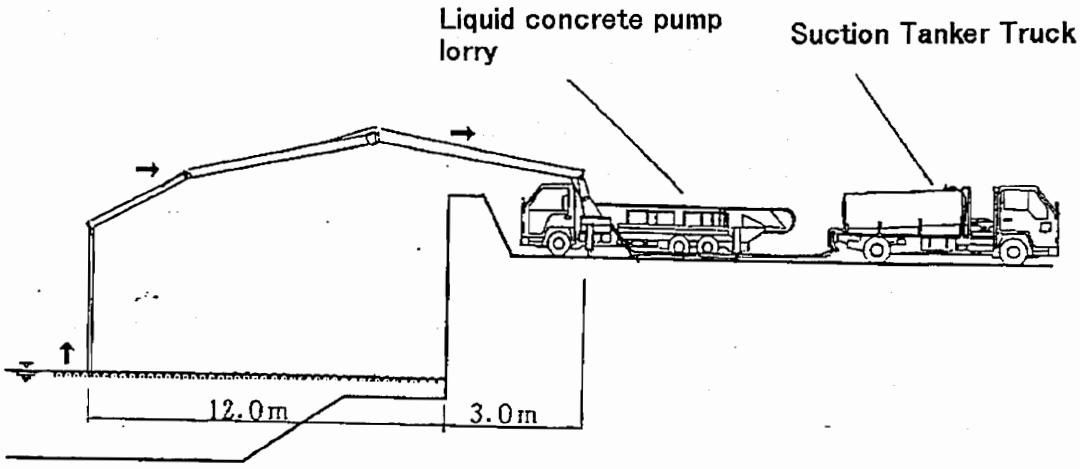
Данный опыт инцидент показал, что автоцистерны для откачки нефти могут быть более приемлемыми по сравнению с самыми мощными устройствами для улавливания нефти с поверхности с берега.

ГРУЗОВИКИ С НАСОСАМИ С ЖИДКИМ БЕТОНОМ

Несмотря на то, что грузовики с насосами с жидким бетоном были менее эффективны по сравнению с танкерами для отсоса нефти, они могли работать в любое время (даже ночью) и при любых погодных условиях, их можно было эксплуатировать в течение суток на дальних расстояниях, и ко всему прочему у них были шланги с длинными насадками. Это была другая впечатляющая картина, когда эти грузовики работали интенсивно, но бесшумно.

После 10 января их перебросили в район города Микуни и в окрестности ядерной электростанции Тсуруга. Использовалось множество идей и предложений, и они сыграли большую роль при использовании отсасывающих танкеров на протяженной береговой линии. Для данных грузовиков характерна большая отсасывающая способность и даже существовала возможность по отсасыванию нефтяных комков из нефтяных пятен, расположенных на отдаленном расстоянии на береговой линии. Это были самыми эффективными нефтесборщиками

Единственная трудность возникла в случае, когда отсасывающий шланг соскочил с поддоном, в результате чего остановилась машина. Для преодоления данной ситуации мы вынуждены были качать насосы в противоположном направлении или заниматься ручной очисткой шлангов. Но даже в подобных ситуациях грузовики оказались самыми эффективными машинами для сбора нефти, и было очень удобно, что мы могли найти такого рода грузовики отовсюду, так как они использовались для строительства зданий и сооружений.



ДИАФРАГМЕННЫЕ НАСОСЫ

Для передачи собранной нефти из металлических бочек для нефти в Фас Танки использовали два диафрагменных насоса. Эти насосы также использовались для сбора нефти с поверхности воды на море, где они устанавливались на рабочие баржи. Фактические результаты превысили ожидаемых.

ЛЮДСКИЕ РЕСУРСЫ

Кроме рыбаков для сбора нефтяных пятен и сгустков, намытых на берег, пришло огромное количество людей из городских советов, включая домработниц и пожилых людей, служащих местного самоуправления, студентов высшей школы, техникумов и колледжей, простых горожан, полицейских и , конечно же, добровольцев, и все они работали при штормовых условиях. Эти люди пользовались совками, лопатами и даже убирали руками для сбора нефти в корзины и передавали их по цепочке к нефтяным бочкам, расположенным на дороге, фас танки или нефтесборочные машины.

Можно было сказать, что без такой мобилизации людей и техники невозможно было так быстро собрать разлитую нефть. Невозможно было определить точное число добровольцев, сотни тысяч и даже миллионы добровольцев подходили и работали. Даже юнцы работали честно и добросовестно, не покладая рук.

АМБАРЫ ДЛЯ ХРАНЕНИЯ НЕФТИ

В соответствии с вышесказанным эти амбары имели большое значение для временного хранения собранной нефти. Амбар NO.1 был закончен утром 9 января после проведения строительных работ в ночное время (выкопали большую яму и вокруг нее построили небольшую плотину). Размер ямы был 35м25м, глубина 3м, и емкость составила около 2,600м3(кубических метров). Дно ямы было выложено голубым пластиком, а боковые стенки были построены таким образом, чтобы нефть не просачивалась. Эта яма была заполнена нефтью только на шестой день, другой дополнительный ангар объемом 400 м3 был построен поблизости. Но этот ангар был уже заполнен в течение одного дня, так что третью яму построили, выложив стены стальными панелями. Три аналогичных ангара построили в районе Канасава, Тсуруга и Сузу. Фас танки (мобильные резервуары для сбора нефти), нефтяные бочки и большие мешки с песком использовались для временного хранения собранной нефти.

УДАЛЕНИЕ НЕФТИ, ОСТАВШЕЙСЯ В НОСОВОЙ ЧАСТИ ТАНКЕРА

Была проведена оценка, что около 2,800 kl нефти осталось в носовой части танкера, которая дрейфовала в Японском море и села на берегу города Микуни, а также предполагали разлив оставшейся нефти из-за вероятного дальнейшего повреждения носовой части танкера. Так что встал вопрос о срочном удалении нефти из носовой части. Но погодные условия на море были плохими, и в связи с этим требовалось предпринять срочные действия по удалению нефти и на это могло уйти много времени. В этих условиях страховая компания стала проводить работы по топографическим съемкам и пригласила участников тендер, но они отреагировали так вяло, что японское правительство решило ввести меры в принудительном порядке и дало поручение MDPC о выполнении этого задания.

Что касается работ на море, то здесь присоединились две спасательные компании, а когда шторм на море успокоился, команды приступили к выполнению работ по открытию палубного люка, находящегося в утопленной части НАХОДКИ. Первые шаги для удаления нефти были предприняты 16 и 17 января, вторая попытка была предпринята 5 и 6 февраля, а последняя - 8, 9 и 10 февраля. Данная работа проводилась только в хороших погодных условиях и для снижения вязкости нефти в емкостях пришлось использовать пар. На берегу была построена временная скоростная дорога для обеспечения подхода к носовой части танкера для проведения работ с берега по удалению нефти независимо от погодных условий. При планировании этих работ, предполагалось, что строительство займет неделю, но высокие волны сняли почвенный и песочный слой, поэтому на данные строительные работы ушло 26 дней (с 15 января по 9 февраля). Совместное предприятие, состоящее из семи компаний из Ассоциации Японских Экскаваторщиков и Инженеров-Мелиораторов, проводили данные строительные работы. При завершении строительства скоростной дороги работы по отсосу нефти находились на завершающей стадии. Поэтому, с берега с носовой части было собрано только 381 кл нефти. Вместо выгоды эта дорога стала дополнительной головной болью для MDPC.

ДИСПЕРГАТОРЫ

9 января мы собрали нефть с поверхности воды вокруг носовой части танкера, и проверили эффективность применения трех видов диспергаторов для сбора нефти при температуре воздуха ниже 8 и температуре воды 4. Но из-за невозможности диспергирования нефти, мы решили не применять диспергаторы.

ЗАКЛЮЧЕНИЕ

Ежегодно в Японии имеют место от30 до 400 разливов нефти, но все они незначительных размеров, самый крупный разлив нефти за последние пять лет был разлив тяжелого мазута класса С объемом 570 кл (японский танкер). До сих пор не было крупных разливов нефти. Однако, MDPC собрал опыт всех операций по очистке от нефтяных пятен (примерно 120 аварий за последние двадцать лет) и изучила случаи крупных аварий, произошедших в других странах, так что MDPC смогла воспользоваться своими знаниями на основе предыдущих инцидентов.

В связи с этим необходимо обсудить множество вопросов относительно сбора нефти, транспортировки на очистные сооружения по окончательной очистке, выполнению всех процедур на участке и порядка выполнения работ, претензий по стоимости операций, учета правительственных расходов на будущие операции и т.д.

IV. Уязвимость окружающей среды и подход нефтяной отрасли к мерам реагирования

Результаты исследований фонового состояния Северо-восточного Каспия

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Компания Оффшор Казахстан Интернэшнл Оперэйтинг Компани (ОКИОК) заключила Соглашение о Разделе Продукции с Правительством Республики Казахстан (РК), которое предусматривает бурение шести разведочных скважин в Северо-восточном Каспии.

Мелководье Северного Каспия и среда обитания заболоченных территорий его прибрежной зоны, в частности обширные сообщества, обитающие в тростниковых зарослях вдоль северного побережья и дельты, делают этот район наиболее биологически продуктивным в Каспийском море. Однако, этот район подвергается также различным экологическим условиям и стрессам, таким как: колебание уровня моря (краткосрочное и долгосрочное), затопление береговой территории, перенос донных отложений во время штормовых нагонов, экстремальные изменения температур и ледовый покров во время зимнего периода. Такая динамика окружающей среды означает, что ее фауна и флора быстро адаптируются к изменениям и экологическим стрессам.

Для того, чтобы определить фоновые условия в этом районе, партнеры ОКИОК и бывший Консорциум «Казахстанкаспийшельф» провели ряд экологических исследований в Северо-восточном Каспии за последние пять лет. Это следующие исследования:

- мониторинг во время стадии сейсморазведки (1994-1995);
- сезонные исследования фонового состояния в Северо-восточном Каспии (1996-1998);
- программа полевых исследований для изучения ледовых условий (1996-продолжаются);
- сбор метеорологических данных (1997-1998);
- программа мониторинга для стадии разведочного бурения (1998-продолжаются);

Программа экологических исследований ОКИОК дала возможность возобновить сбор и анализ экологических данных по Северо-восточному Каспию. Такая работа была почти прекращена после развала Советского Союза.

В этой работе участвовали ученые и организации РК, включая КазНИИРХ, ЭНВИРС, Казгидромет, ряд экологов из институтов Академии Наук и других республиканских лабораторий, а также ученые из международных организаций, таких как ERT, ADL и Нордэко. Результаты программы мониторинга и обширных литературных обзоров были, в основном, использованы для подготовки ОКИОКом карты чувствительности и оценки воздействия на окружающую среду.

По биологическим параметрам (водная растительность, планктон, бентос, рыбы, птицы и тюлени) исследования, проведенные ОКИОК, подтвердили, в основном, предыдущие данные относительно распределения фауны и флоры. Были накоплены полезные данные об определенных площадях и о большей

части региона, что позволило провести сезонное сравнение численности, концентрации, биомассы, структуры и разнообразия биологических сообществ.

В период подъема уровня моря в 1978 - 1995 гг. образовалась новая среда обитания в Северном Каспии, полезная для биологических сообществ. Например, такие полупроходные рыбы, как сазан, лещ и вобла, которые обитают в среде с низкой соленостью, стали иметь больше места для нагула и роста молоди. Однако следует отметить, что запасы осетровых здесь и вообще в Каспии находятся в критическом положении из-за избыточного улова, уничтожения нерестилищ в реках и загрязнения (в основном, ДДТ и аналогичными пестицидами).

Программа исследования фонового состояния окружающей среды ОКИОК включала анализ воды и донных отложений по следующим параметрам:

- углеводороды;
- тяжелые металлы;
- фенолы;
- биогенные элементы (соединения азота и фосфора);
- окислительно-восстановительный потенциал и биологическое потребление кислорода;
- гранулометрический анализ донных отложений.

Также был проведен патоморфологический и химический (на содержание углеводородов и тяжелых металлов) анализ тканей рыб.

До начала реализации программы ОКИОК Северный Каспий считали умеренно загрязненным, а Уральскую Бороздину, куда стекали загрязняющие вещества, сильно загрязненной. Однако по результатам исследований ОКИОК установлено, что уровень загрязнения (включая содержание углеводородов и тяжелых металлов) воды, донных отложений и тканей рыб в Северо-восточном Каспии оказался, в основном, ниже, чем было зарегистрировано ранее. И этот уровень, в основном, сопоставим с фоновыми уровнями для других устьевых/морских участков. Закрытие многих промышленных заводов вдоль рек, особенно на реке Волга, и явились основной причиной последующего снижения содержания загрязняющих веществ в стоках рек.

Общая концентрация углеводородов (ОКУ) в морской воде и донных отложениях, в основном, низкая и сопоставима с фоновыми уровнями в мире, кроме некоторых «горячих точек», например, вблизи старых ликвидированных скважин в прибрежной затопленной зоне вдоль восточного побережья моря. Большая часть измерений ОКУ в морской воде показывает, что за последние годы средние значения не превышали предельно допустимую концентрацию (ПДК) для рыбохозяйственных водоемов(50 мкг/л, т.е. 50 частей на миллиард). Средний уровень по результатам осеннего фонового исследования 1997г. составил 29,6 мкг/л. В отчетах об исследованиях, проведенных в западной части Северной Атлантики и Мексиканском заливе, сообщалось, что концентрации углеводородов в морской воде (отфильтрованной и не отфильтрованной) были в пределах 1-100 мкг/л, в то время как, фоновые значения в Северном море (отфильтрованная вода) были в пределах 1-10 мкг/л.

Алифатические углеводороды, присутствующие в донных отложениях, являются, в основном, биогенными (т.е. из растительного воска, водорослей и

фитопланктона), хотя наблюдается невысокий уровень загрязнения нефтью. Ароматические углеводороды смешанного петрогенного и пиролитического происхождения с низкими концентрациями полициклических ароматических углеводородов (ПАУ) в донных отложениях.

Было отмечено некоторое увеличение ОКУ в донных отложениях осенью 1997г. по сравнению с весной 1996г., но лабораторные анализы показали, что углеводороды были опять, в основном, биогенного происхождения.

Что касается концентрации тяжелых металлов в морской воде, то медь была единственным из одиннадцати элементов, обнаруженных как казахстанскими, так и международными лабораториями, которая превышала ПДК во время фоновых исследований 1996-1997гг. Хотя казахстанские лаборатории обнаружили также, что уровни свинца были выше ПДК в эти годы, а хром, железо, ртуть и цинк были выше ПДК только в 1996 г. Концентрация большей части металлов в воде осенью 1997 г. была ниже по сравнению с весной 1996 г.

Концентрации тяжелых металлов в донных отложениях были сопоставимы или ниже результатов, полученных в других частях мира, включая Северную Атлантику, Новую Англию, залив Пагасситикос в Средиземном море и в других частях Ближнего Востока. Самые высокие уровни в Северо-восточном Каспии были обнаружены в стоке реки Урал и в северо-восточной части исследуемой территории. Содержание большинства металлов в пробах, взятых из более глубоких слоев донных отложений, было выше, чем для поверхностных проб.

Оказалось, что содержание фенола снизилось по сравнению с предыдущими данными и в период с 1996 по 1997 гг., хотя последнее, возможно из-за сезонного изменения. По измерениям казахстанских ученых (1997г.) уровень фенола в настоящее время ниже ПДК. Концентрации фенолов в донных отложениях находятся на уровне фоновых значений.

Содержание биогенных элементов (соединений азота и фосфора) и растворенного кислорода в воде аналогично средним долгосрочным значениям для Северо-восточного Каспия.

Донные отложения в большей части, где отбирались пробы, хорошо насыщены кислородом со значениями окислительно-восстановительного потенциала, характерными для здоровой морской среды.

$БПК_5$ (биологическое потребление кислорода) в воде значительно ниже ПДК и не проявляет очевидной тенденции к увеличению или антропогенному воздействию на воду или донные отложения.

В пробах тканей/икры рыб общее содержание алифатических углеводородов было на уровне фонового и, в основном, биогенного (природного) характера, хотя на отдельных станциях отбора проб в печени рыб были обнаружены нефтяные углеводороды, но относительно низкой концентрации.

Что касается содержания тяжелых металлов в икре и тканях рыб, барий, медь, железо и цинк имели более высокие уровни, чем другие элементы. Однако концентрации большинства металлов были сопоставимы с фоновыми уровнями в других частях мира, за исключением бария, железа и никеля.

Концентрации загрязняющих веществ на площадях предполагаемого бурения ОКИОК находились в диапазоне значений, характерных для более обширной

территории Северо-восточного Каспия, хотя концентрации тяжелых металлов в донных отложениях ниже и имеют меньшую изменчивость.

Отбор проб проводился также вблизи береговых нефтяных скважин в затопленной зоне восточного побережья Северо-восточного Каспия. Были исследованы шесть скважин (визуально наиболее загрязненных). Пять из них, как и ожидалось, показали высокие уровни ПАУ и ОКУ в почве вокруг них. Одно из этих мест, наименее загрязненное, имело концентрации углеводородов, аналогичные фоновым уровням в морских донных отложениях; что возможно связано с регулярным вымыванием штормовыми нагонами.

В заключение, среда Северо-восточного Каспия сложная и чувствительная. Она очень динамична, и поэтому ее фауна и флора приспособлены к высокой степени экологической изменчивости и стрессу. На сегодня сложилось критическое положение с запасами осетровых не только здесь, нок и в более обширной части Каспия. Однако в настоящее время степень загрязнения окружающей среды в Северо-восточном Каспии значительно ниже, чем это было зарегистрировано или предполагалось ранее, и сопоставимо с фоновыми уровнями в других устьевых/морских районах.

V. Принципы эффективного реагирования на нефтяные разливы

Принципы эффективного реагирования на нефтяные разливы

Эрик Андерсон, Дженифер Бейкер, Крэйг Бакингем, Крис Иннес, Крис Моррис, Джон Остергаард, Родерик Томас, Ник Вандеркой

Notes

Эфективность Реагирования На Нефтяные Разливы
Цели

- Увеличить взаимооповещенность в вопросах реагирования на нефтяные разливы на основе последующих дискуссий.
- Установить экологический контекст Каспийского региона.
- Поддерживать (посредством совместной работы) специфику планирования реагирования на непредвиденные ситуации.
- Улучшать совместную философию реагирования.

Поведение и эффект нефтяных разливов в Каспийском регионе

Предметы обсуждения

Рассмотрение возможных причин нефтяного разлива, потенциальных изменений к которым может привести нефтяной разлив. (экология, коммерция, отдых)

Свойства нефти

- Специальная гравитация / API: *плотность*
- Вязкость: *сопротивляемость текучести*
- Точка текучести: *ниже которой нефть не течет*
- Летучесть: *способность испаряться*
- Содержание асфальтина: *способность образовывать эмульсию*

Notes

Нефть, как загрязнение

- Характеристика нефти
  - сложная природа
  - способность к биодеградации
- воздействие:

Токсичьность — Удушающий эффект

Смертность

Нестойкая нефть — Стойкая нефть

Notes

Воздействие нефти

Экология
птицы, рыбы, береговая среда итд...
Отдых
повседневный отдых, водный спорт итд...
Коммерция
рыболовство, рыбные
промысла, промышленное использование
воды итд...

Типы побережья

Уменьшение энергии

- Скальный выход
- Булыжник
- Галька / щебень
- Песок
- Ил
- Заболоченность

Увеличение уязвимости

OILMAP
Компьютерное моделирование

Предметы обсуждения

Демонстрация возможностей компьютерного моделирования. Прослеживание поведения нефти по сценарию определенному в предыдущих сеансах.

Notes

Моделирования Нефтяных разливов и Циркулирования

Их потенциальные возможности в Каспийском море

Доклад от Эрика Андерсона, ASA

Поведение и эффект нефтяных разливов
Дискуссия

- Обсуждение рисков
  - возможные сценарии разливов
    - Тип нефти, количество, месторасположение, поведение, экологическое состояние, итд... Обсуждение возможного влияния разлива на экологию региона
    - Запись заключений

Обед

Notes

Процесс планирования реагирования на непредвиденные ситуации

Предметы обсуждения

Определение ключевых элементов разделов планирования реагирования на непредвиденные ситуации.

Обсуждение развития взаимоотношений и коопирации между операционными компаниями и правительством.

Общии обязанности планирования

- Лидирующее агенство
- Специализируемые агенства
- Индустрия

Концепция уровней реагирования

Размеры разлива	вблизи	в незначительной отдаленности	отдаленн
большой	3	3	3
средний	2	2	3
маленький	1	2	2

Удаленность

Notes

Уровни реагирования

- Формирование общей оценки
- Заниматься разливами любого размера
- Подход к оценке риска
- Избегать чрезмерных инвестицый в оборудование и персонал
- Техобслуживание и обучение так-же влияет на цену

Планы реагирования на непредвиденные ситуации

- Секция стратегии
  - обязанности
  - политика
  - рациональность
- Операционная секция
  - последовательность действий
  - информация

Секция стратегии

- Вступление
  - руководящее агенство
  - охватываемая географическая зона
- Оценка риска
  - частота, размеры разливов
  - типы нефти
  - сценарии разливов
- Поведение и перемещение
  - характеристика нефти
  - ветра и течения
  - кампьютерное моделирование

Notes

Секция стратегии

- Ресурсы определяющие риск
  - карты важных, чувствительных участков
  - приоритеты защиты
- Выбор технических приемов реагирования
  - ограничения
  - типы побережья
  - местонахождение оборудования
  - контракты
  - человеческие ресурсы
  - хранение и сброс

Секция стратегии

- Внешнии организации реагирования
  - роли и обязанности
  - коммуникация
- Обучение и обозрение
  - программы для всех уровней
  - учения и упражнения
  - тестирование и техобслуживание оборудования
  - обзор и обновление

Операционная секция

- Оповещение
- Определение
- Ответственное решение
- Операции по очистке
- Связь
- Отключение
- Покрытие расходов

Notes

Стратегии и ограничения нефтяных разливов
Предмет обсуждения

- Проверка основных вариантов реагирования (стратегии) и определение их ограничений.
- Дискуссия возможности применения вариантов стратегий в Каспийском регионе.

Стратегии

- Мониторинг и оценка
- Химические диспиргенты
- Огрождение и сбор
- Защита
- Очистка побережья
- Сжигание
- Искусственная биодеградация

Наблюдение и оценка

- Безопастность труда
- Природные процессы
- Окружающая среда
- Наблюдение перемещения нефти
  - наблюдение с воздуха
  - компьютерное прослеживание перемещения
- Быть готовым к осуществлению соответствующих действий

Notes

Химические диспергенты

- Разрешение на использование-политика предварительной обговоренности.
- Эффективность
- Способность справляться с большиме объемами
- Снабжение

Огрождение и сбор

- Крупные инвестиции
- Снабжение
- Операционные ограничения
- Способность справляться с большиме объемами
- Обучение
- Временное хранение и сброс

Защита

- Приоритеты по степени чувствительности
- Эффективное использование доступных рессурсов
- Снабжение и практичность
- Эффективность денежных расходов

Notes

Очистка побережья

- Типы побережья
  - чувствительность
  - отдых
  - подъезды
- Руководитель проекта
  - интенсивность рабочей силы
  - низкая технология

Сжигание поверхностной нефти

- Необходимость для сгорания:
  - воспломинители
  - малое содержание воды в нефти
  - минимальная толщина (3мм)
  - специальные боновые сооружения

Искусственная биодеградация

- Ускорение биодеградации:
  - добавка питательных веществ
  - добавка микроорганизмов

Стратегии

Общие заключения

- Доступность различных вариантов реагирования
- Возможность комбинировать различными вариантами реагирования
- Их использование будет увеличивать разнообразие вопросов
- Политика предварительной обговоренности необходима для определенных стратегий

Notes

Сеть экологической выгоды

Анализы
Предмет обсуждения

Доклад от Dr Jenifer M Baker

Перерыв

Практическое руководство по нефтяным разливам
Предметы обсуждения

Обсуждать и выявлять, как должно осуществляться руководство по реагированию на нефтяной разлив с практической точки зрения

Notes

Структура реагирования

- Кто может быть лидирующим авторитетом при различных сценариях?
  - Операционная компания может справляться с малыми разливами
- Министерство ответственное за местные ресурсы
  - что происходит когда разлитая нефть пересекает границы
- Составные части органицации ответственной за катастрофу

Обязанности

- Взаимодействовие ответственных структур с неофициальными объединениями.
- Определение ответственности и гарантий.
- Ратифицирование региональных, интернациональных соглошений на местах.
- Национальные планы реагирования на непредвиденные ситуации.

Структура организаций

Эта группа должна объединять главных участником и ответственных лиц.

Вышеуказанные 4 функциональные группы могут быть созданы из авторитетов, представителей страховых структур, контракторов, представителей нефтяных компаний и других.

Notes

Циркулирование планирования

- A Рапорт с места событий от бригадира к опер. руководству
- B Совещание по оценке ситуации
- C Ответ бригадиру-прогноз, предметы, тактика
- D Совещание по определению операционной тактики
- E Совещание по планированию

План действий по инциденту

От системы ICS разрабатываемой каждые 12 часов

- Послания по безопастности труда
- Основные предметы
- Ресурсы
- Вопросы охраны окружающей среды
- Коммуникация
- Погода

План коммуникаций

Notes

Этапы реагирования

Чрезвычайный случай **Проект**

Вызов

Оценка

Мобилизация

Операции

Демобилизация

Общая структура организации

- Лидирующее агенство
- Бригадиры, руководители на местах
- Общее руководство
- Ответственные лица

Обязательства и компенсации ущерба от владельцев танкеров, в случае нефтяного загрязнения

Доклад от Dr Tosh Moller, ITOPF

Notes

Международные конвенции

- Компенсация по страховке затрат, связанных с очистными работами и ущербом
- Форма обращения претензий

Набросок

- Особенности компенсации
- P & I клубы
- CLC и FC
- IOPC Фонд

Строгая ответственность

- Владелец танкера несет юридическую ответственность за случившееся
- Редкие исключения
- Способствование незамедлительной выплоты компенсаций без судебного разбирательства

Notes

Совокупность компенсаций

- Реальная цена связанная с
  - предупреждающими мерами
  - ущербом недвижемости
  - последующими и чистыми экономическими потерями
  - ущербом экологии (расходы связанные с восстановлением)

P и I Клубы

- Страхование третий стороны
- Концепция взаимопонимания
- Международная группа (15 клубов покрывают 90% мирового танкер-тонажа)
- Повторное страхование
- Корреспонденция

CLC 69

- Распростроняется на
  - ущерб загрязнением
  - государство под контрактом
  - стойкая нефть
  - груженные танкера

Notes

Фонд Конвенции 1971

- Распространяется когда
  - ущерб превышает предел CLC
  - владелец танкера не в состояние платить
  - CLC не имеет юридическую силу
- Распространяется на
  - ущерб загрязнением
  - государство под контрактом
  - стойкая нефть
  - груженные танкера

FC 71 ограничение компенсации

- 85 миллионов доллоров США (включая сумму оплачиваемую под CLC)
- Фонд так-же возмещает владельцу танкера минимально 47 доллоров США за тонну, или 8 милионов доллоров США

1992 протоколы по CLC и FC

Пересмотр комренсационных ограничений

- CLC
  - 4.3 миллиона долларов США за танкера < 5,000 GT (гросс.тонн)
  - Дополнительные 596 доллоров США / GT за танкера >5000GT , максимально 85 миллионов доллоров США
- FC
  - 192 милиона доллоров США независемо от размера танкера

Notes

протоколы 1992 по CLC и FC
пересмотренные содержания

- Включают разливы с негруженных танкеров
- Включают компенсации по потенциальной угрозе
- Разъяснение ущерба от загрязнения
- Дополнение к EEZ
- Исключение возмещения ущерба владельцам танкеров

фонд IOPC

- Ассамблея
- Руководящий Комитет
- Секретариат

Вклады фонда IOPC

- Каждый член фонда получающий больше чем 150,000 тонн нефти ежегодно морским транспортом.
  - нефть = сырая нефть и тяжелое нефть

Notes

Вклады фонда IOPC

- Вклады оцениваются когда претензии разрешены
- Нефтеполучатель платит, не правительство
- Импортирующий платит, не экспортирующий

Международная Система Компенсаций

- "Реальная оценка" значить оценка должна:
  - базироваться на технической оценке инцидента
  - искать методы усиливающие природный процесс очистки от нефти
  - не действовать для создания видемости активности в глазах общественности

AIOC

Доклад от Nick Vanderkooy

Доклад сфокусирован на:

- деятельности подкомитета, сформированного под Координационным Советом Азербайджана
- возможностях индустрии и кооперативных соглашений
- пропагандирование необходимости кооперации в Каспийском регионе по реагированию на нефтяные разливы второго уровня.

Notes

Эффективность реагирования на нефтяные разливы
Дискуссия

- Дискуссия по принципу эффективности реагирования
- Определение вопросов дискуссии 3-го дня
- Запись заключений

АНАЛИЗ ОБЩЕЭКОЛОГИЧЕСКОЙ ПОЛЬЗЫ МЕР РЕАГИРОВАНИЯ НА РАЗЛИВЫ НЕФТИ

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АННОТАЦИЯ

Во многих случаях возможные меры реагирования на нефтяные разливы могут нанести потенциальный вред флоре и фауне и (или) среде обитания, а также социально-экономической деятельности. Поэтому необходимо взвешивать преимущества и недостатки различных мер реагирования и сравнивать их между собой, а также с преимуществами и недостатками естественной очистки. Этот процесс известен под названием «анализ общеэкологической пользы» (сокращенно по-английски «NEBA»). Согласно концепции NEBA допускается, что некоторые ответные меры очистки могут наносить вред, но при этом являться оправданными по причине преимуществ более приоритетного порядка. В основе своей NEBA имеет смысл включать в качестве составного элемента в общий процесс планирования мер на случай возникновения непредвиденных обстоятельств, поскольку опыт показывает, что решения, принимаемые после разлива нефти или нефтепродуктов, бывают оптимальными и оперативными при условии заблаговременного проведения анализа и консультаций и достижения договоренностей до возникновения разлива при участии всех заинтересованных организаций.

СОДЕРЖАНИЕ ТЕКСТОВОГО СЛАЙДА

(Примечание: остальные слайды, которые намечается продемонстрировать, представляют собой фотографии объектов, иллюстрирующие конкретные события.)

АНАЛИЗ ОБЩЕЭКОЛОГИЧЕСКОЙ ПОЛЬЗЫ

- Сбор информации о регионе.
- Изучение прошлого опыта.
- Прогнозирование экологических последствий.
- Сопоставление преимуществ и недостатков.
- Оценка преимуществ и недостатков.

Оптимальные меры реагирования не исключают всех возможных недостатков.

VI. Перспективы США в отношении планирования действий в непредвиденных ситуациях

VII. Планы действий в чрезвычайных ситуациях в прикаспийских государствах

Заседание рабочей группы по аварийному реагированию на нефтяные разливы в Алматы

ДЕЯТЕЛЬНОСТЬ МОРСКИХ ОПЕРАЦИОННЫХ КОМПАНИЙ В АЗЕРБАЙДЖАНСКОЙ НЕФТЯНОЙ ПРОМЫШЛЕННОСТИ

Вступление

- Азербайджанская международная операционная компания (AIOC) - это международный консорциум, занимающийся в Азербайджане добычей нефти на море.
- ГНКАР - это национальная компания, занимающаяся добычей нефти в мелководной прибрежной зоне.
- NAOC - CIPCO - BP ШАХ ДЕНИЗ - три консорциума, чья деятельность, главным образом, направлена на поисково-разведочные работы
- Другие операционные консорциумы осуществляют сейсмические изыскания, и в течении следующих нескольких лет проведут разведочные бурения:

  (К ведущим компаниям относятся: EXXON, MOBIL, BP/AMOCO, Chevron, Elf, LUKoil)

Комитет по реагированию на аварийные ситуации

- Комитет по реагированию на аварийные ситуации представляет собой промышленный комитет, сформированный в рамках Форума по охране здоровья, технике безопасности и защите окружающей среды.
- В членах Комитета состоят операционные компании и другие нефтяные компании
- Работа сконцентрирована на деятельности нефтяной промышленности Азербайджана на море
- Цели:
  - предоставление технической поддержки
  - обеспечение регулируемого подхода к управлению аварийными ситуациями.

Возможности существующих операционных компаний реагировать на аварийные ситуации на море

- Подряд на услуги по реагированию на нефтяные разливы передан частной компании
- Оборудование и специальная группа по реагированию на нефтяные разливы находятся в состоянии готовности 24 часа в сутки
- Склад оборудования находится в Баку
- Судно снабжения, работающее на платформу, и две буровые установки будут использованы для мобилизации оборудования для реагирования на аварийные ситуации на море.
- Предприняты меры по привлечению дополнительного оборудования и персонала для оказания помощи в случае аварийной ситуации 3-го уровня.
- *Документация*: План реагирования на нефтяные разливы, Руководство по охране прибрежной зоны и Модель траектории нефтяных разливов разработанны для существующих операционных компаний.

Деятельность на берегу

- Разработаны подробные процедуры реагирования на разливы, связанные с Операциями по экспортному трубопроводу
- Разработаны следующие документы: План реагирования на нефтяные разливы и Руководства по локализации разливов на СМЭТ и ЗМЭТА, в которых указывается:
- Расположение запорных клапанов
- Расположение переходов рек
- Определение подходящих участков для локализации
- Определение оборудования и персонала, необходимого для мобилизации этих участков

1-ое Соглашение о сотрудничестве при реагировании на нефтяные разливы

- Участники: AIOC – NAOC – CIPCO
  BP ШАХ-ДЕНИЗ - BMES
- Разделение операционных расходов по содержанию Вспомогательных служб для реагирования на нефтяные разливы
- Участие в занятиях по развертыванию
- Оказание поддержки другой стороне в случае аварийной ситуации
- Срок настоящего Соглашения о сотрудничестве - 1998/1999 календарные годы

Будущие действия

- Увелечение объема операций в Азербайджанском морском секторе представит новые возможности для совместного пользования ресурсами
- Необходимо разработать критерии участия для будущих Членов Соглашения о сотрудничестве при реагировании на нефтяные разливы
- Необходимо установить более тесную связь и сотрудничество с правительственными организациями по следующим направлениям:
  - Обучение по реагированию на нефтяные разливы
  - Занятия
  - Планирование действий по реагированию
- Разработка Общекаспийского механизма реагирования на аварийные ситуации

Слайд № 1

РЕСПУБЛИКА КАЗАХСТАН

ПРЕЗЕНТАЦИЯ СИСТЕМЫ ПРЕДУПРЕЖДЕНИЯ И ЛИКВИДАЦИИ ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЙ В КАЗАХСТАНСКОМ СЕКТОРЕ КАСПИЙСКОГО МОРЯ ПРИ РАЗЛИВЕ НЕФТИ

Комитет Республики Казахстан по чрезвычайным ситуациям

Декабрь 1998 года

Слайд № 2

Историческая справка

- В бывшем СССР ответственность за предупреждение и ликвидацию крупных разливов нефти возлагалась на Миннефтепром, Мингазпром, Миннефтехимпром, Мингеологии, на производственные предприятия данных ведомств, которые имели в своем составе специализированные аварийно-спасательные и противофонтанные службы.
- В декабре 1990 года принято Постановление Совета Министров Казахской ССР о создании Комиссии по чрезвычайным ситуациям. В августе 1991 года утверждено Положение о Комиссии по чрезвычайным ситуациям.
- При Правительстве Республики Казахстан, в 1993 году, образована Государственная Комиссия по чрезвычайным ситуациям.
- В 1995 году Комиссия преобразована в Государственный комитет по чрезвычайным ситуациям (ГКЧС).
- В 1996 году функции Комитета по надзору за безопасным ведением работ и горному надзору переданы Государственному Комитету РК по чрезвычайным ситуациям.
- В 1997 году ГКЧС преобразован в Комитет Республики Казахстан по чрезвычайным ситуациям.Государственная противопожарная служба передана в состав Комитета РК по ЧС.
- Республика Казахстан разработала долгосрочную программу по предупреждению и действиям в чрезвычайных ситуациях. (1994 г. постановление № 1081)
- Правительством Республики Казахстан в 1997 году принято постановление №1298 "О Государственной системе предупреждения и ликвидации чрезвычайных ситуаций".
- Руководство Государственной системой предупреждения и ликвидации чрезвычайных ситуаций возложено на Комитет Республики Казахстан по чрезвычайным ситуациям.
- Комитет Республики Казахстан включает в себя системы Гражданской обороны и воинских частей, Государственной противопожарной службы, Государственного надзора за чрезвычайными ситуациями, безопасным ведением работ в промышленности и горному надзору, Государственной защиты от природных бедствий (Казселезащита и Центрспасвод) и подведомственные территориальные органы.

Слайд № 3

Распределение обязанностей

- Требования по обеспечению безопасности взрыво-, пожароопасных объектов регламентируются законами, указами Президента, постановлениями Правительства, другими подзаконными актами и нормативно-техническими документами Республики Казахстан.
- Комитет Республики Казахстан по чрезвычайным ситуациям, в соответствии с функциональными обязанностями, установленными Правительством Республики Казахстан, осуществляет непосредственное руководство предупреждением и ликвидацией региональных и глобальных чрезвычайных ситуаций природного и техногенного характера.
- В соответствии с постановлением Правительства № 1298 разработка и реализация согласованных с Комитетом РК по ЧС мероприятий по предотвращению и ликвидации последствий аварий и катастроф возложено на Министерство энергетики, индустрии и торговли, Министерство транспорта и коммуникаций, Министерство экологии и природных ресурсов, Министерство обороны, Министерство внутренних дел, Министерство сельского хозяйства (по принадлежности).
- В соответствии с Законом, местные представительные и исполнительные органы создают территориальные комиссии по ЧС и ответственны за предупреждение и ликвидацию чрезвычайных ситуаций на соответствующей территории и объектах.

Слайд № 4

Полномочия Комитета Республики Казахстан по чрезвычайным ситуациям

- Координирует работу Министерств, Государственных Комитетов, местных исполнительных органов и научных учреждений в области предупреждения и ликвидации чрезвычайных ситуаций природного и техногенного характера.
- Вносит на рассмотрение Правительства Республики Казахстан государственные доклады о состоянии защиты населения, окружающей среды и объектов хозяйствования от чрезвычайных ситуаций.
- Руководит участием сил гражданской обороны в мероприятиях по предупреждению и ликвидации чрезвычайных ситуаций.
- Осуществляет непосредственное руководство ликвидацией региональных и глобальных чрезвычайных ситуаций.
- При ликвидации чрезвычайных ситуаций мобилизует материально-технические ресурсы организаций, независимо от форм собственности и ведомственной принадлежности.
- Координирует деятельность аварийно-спасательных служб и формирований.
- Последний пример участия таких служб - аварийный фонтан на скважине Тенгиз - 37 в 1985 году, на укрощение которого потребовалось 14 месяцев.

Слайд № 5.

Ситуация по освоению нефтегазового потенциала на шельфе Северного Каспия

- Постановлением Кабинета Министров Казахской ССР № 252 от 30 апреля 1974 года Северный Каспий объявлен заповедной зоной. В связи с этим запрещалась разработка минеральных ресурсов береговой зоны и программы для профилактики и борьбы с нефтяными разливами не разрабатывались.
- После обретения Казахстаном независимости Правительство РК приняло решение о проведении нефтяных операций и в акватории своих внутренних водоемов и на Каспии.
- Постановлением Кабинета Министров РК № 936 от 23 сентября 1993 г. в предыдущее постановление внесено дополнение следующего содержания: "д" производство геофизических исследований, геологоразведки и добычи углеводородного сырья с учетом особых экологических условий"
- В 1993 году была создана новая компания "Казахстанкаспийшельф" (ККШ).
- 3 декабря 1993 года был создан Международный консорциум по Каспийскому морю, в состав которого помимо оператора- "ККШ", вошли Agip, British Gas, Mobil, BP/Statoil, Total, Shell .
- В соответствии с Соглашением о Разделе Продукции, подписанным в ноябре 1997 года между Правительством Республики Казахстан и иностранными нефтяными компаниями, была учреждена новая операционная компания ОКИОК, на которую возложено проведение буровых работ на шельфе Каспия.

Слайд № 6.

Состояние дел с предупреждением разливов нефти на море

- В соответствии с Законом “О чрезвычайных ситуациях природного и техногенного характера”, организации, независимо от форм собственности и ведомственной принадлежности, обязаны: планировать и проводить мероприятия по повышению устойчивости своего функционирования и обеспечению безопасности работников и населения; проводить защитные мероприятия, спасательные, аварийно-восстановительные и другие неотложные работы по ликвидации чрезвычайных ситуаций на подведомственных объектах и прилегающих к ним территориях, в соответствии с утвержденными планами.
- Нефтяным компаниям необходимо разработать собственные планы и мероприятия по реагированию на разливы нефти и согласовать их с надзорными органами Республики.
- Нефтяные компании несут ответственность за недопущение разливов, их быстрейшую ликвидацию, если они произошли, смягчение их негативного воздействия на окружающую среду и компенсацию нанесенного ущерба природе и проживающему населению, так или иначе пострадавшему от нефтяного разлива.
- Ответственность за разливы нефти при транспортировке ложится на компании, транспортирующие нефть, имеющие соответствующие лицензии государственных органов.

Основные проблемы по реагированию на ЧС, связанные с разливами нефти на море

- Отсутствуют планы действий Операционной Компании при возникновении открытых нефтегазовых фонтанов и других аварий.
- Не в полной мере Консорциумом нефтяных компаний решены организационные, финансовые, технические вопросы при инциденте разлива нефти.
- Отсутствуют планы привлечения оборудования, техники и специалистов зарубежных фирм и помощи других стран для борьбы с разливами нефти и оценка эффективности.
- Отсутствует территориальная служба быстрого реагирования при чрезвычайных ситуациях на море, оснащенная спец. оборудованием, плавсредствами и другим снаряжением.
- Существующая нормативная база не достаточно регламентирует:

- Действия нефтяных компаний, центральных и местных исполнительных органов, других ведомств и организаций при разливах;
- Обязательства сторон, призванных обеспечить безаварийную эксплуатацию нефтяных скважин на море;
- Совместные действия государств и компаний по трансграничным разливам нефти и сотрудничество;
- Процедуры оперативного оповещения Правительства и соседние государства;
- Принципы быстрого таможенного контроля аварийного оборудования, проходящего границы Прикаспийских стран;
- Ответственность компаний за расходы, понесенные на очистку и компенсацию ущерба;

Слайд № 8

Рекомендации по исправлению ситуации

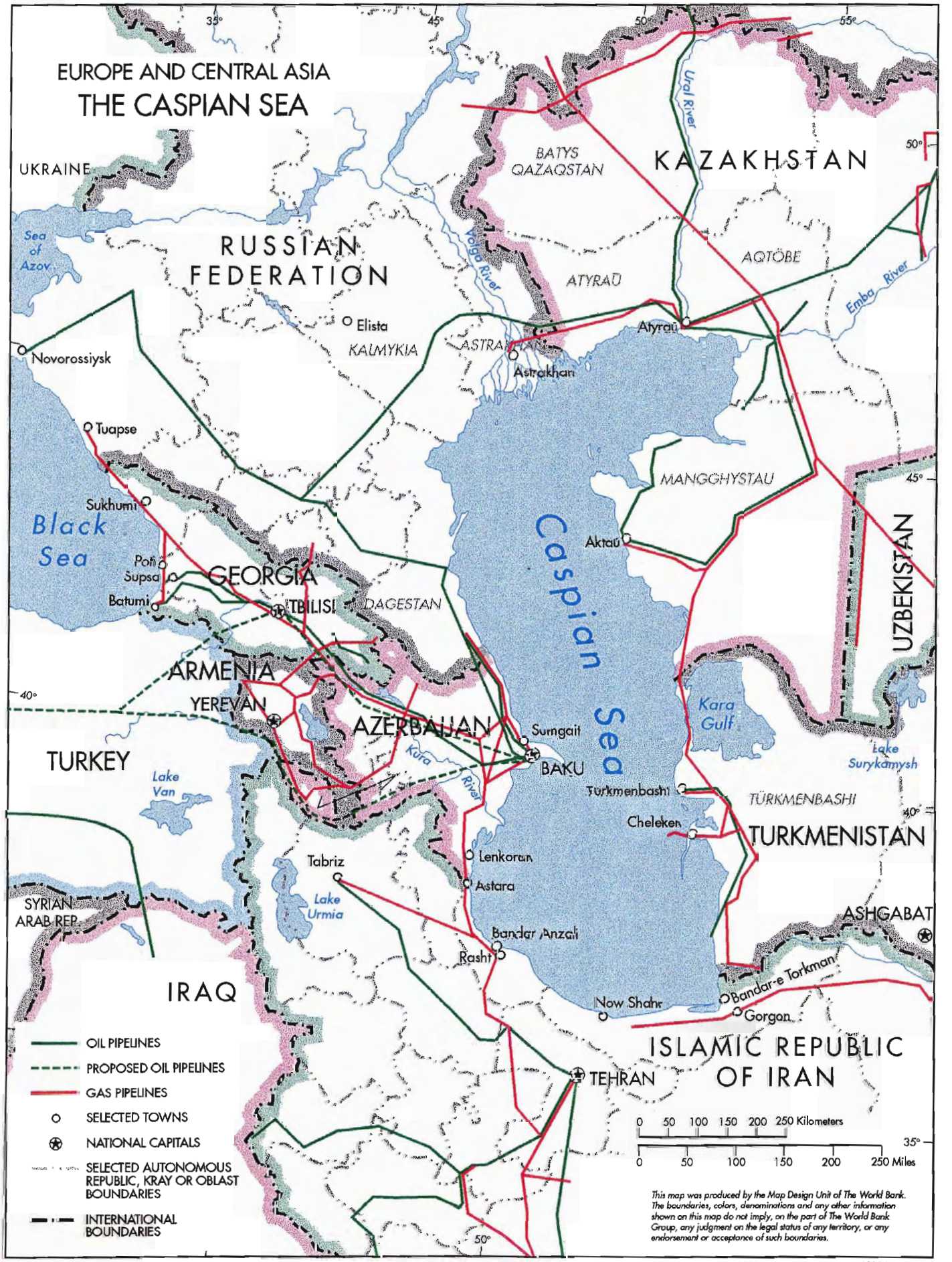
1. Заключение межгосударственных договоров или многосторонних соглашений между Прикаспийскими странами по повышению эффективности взаимодействия при реагировании на ЧС, вызванные разливами нефти на Каспии. Создание региональной кооперации между государственными органами по предупреждению и ликвидации чрезвычайных ситуаций.
2. Обеспечение Прикаспийскими государствами выработки эффективных механизмов оказания взаимной помощи по срочной мобилизации аварийного оборудования для ликвидации разливов.
3. Разработать общие принципы контроля и производственного мониторинга за проведением морских нефтяных операций, предотвращения и ликвидации нефтяных разливов, оценок фонового состояния и воздействия на окружающую среду.
4. Определение обязанности и ответственности, включая финансовую, при ликвидации разливов, между компетентными государственными органами и нефтяными компаниями.
5. Разработать национальный план по реагированию на чрезвычайные ситуации при проведении нефтяных операций на море.

- В национальном плане должны быть четко определены вероятностные риски при проведении нефтяных операций на море, роль и ответственность Правительства, государственных органов и компаний, на каждом этапе развития, наступления и ликвидации чрезвычайных ситуаций.
- Национальный план должен отражать:

- наиболее ранимые прибрежные зоны Северного Каспия, в первую очередь подлежащие защите от воздействия нефтяных разливов;
- допустимые критерии применения диспергентов;
- круг ответственных лиц в Правительстве и госорганах для координации работы компаний на случай разлива;
- вопросы обучения персонала компетентных государственных органов методам предупреждения и ликвидации разливов нефти на море.

6. Обязательность создания специализированной аварийно-спасательной службы для оперативного реагирования на разливы нефти на Северном Каспии.

IBRD 29844



JANUARY 1999