

**FINAL REPORT OF THE ACTION**

**"Contingency Planning and Oil Spill Response" Training Course**

**A. Framework of the action and objectives**

The "Contingency Planning and Oil Spill Response" Training course, was materialized as an action under the Priority Field Action III.4.1 "Response to oil pollution at sea and on the coast" of the 2000 European Community co-operation framework against accidental or deliberate marine pollution.

The four-day training course took place in Athens, Greece (Metropolitan Hotel, 385 Syggrou Avenue) in February 11 - 14, 2001. Two scheduled events, the spill response demonstration and the visit to Petrola Hellas Oil Refinery took place in the Port of Piraeus and in Elefsis Gulf respectively.

The action was aimed to enhance and supplement the Member States' efforts at national, regional and local levels for the protection of the marine environment, coastlines and human health against risks for accidental or deliberate pollution at sea. The general objectives of the course were the following:

- to increase the awareness of the participants on the field of the accidental and deliberate marine pollution by oil, and particularly to the demanding capabilities needed for responding timely and effectively to emergency situations,
- to encourage and cultivate a spirit of cooperation between the participants, and
- to strengthen national planning and preparedness for responding to oil pollution incidents which are likely to threaten the marine and coastal environment, human health and to damage economic and cultural values.

**B. The Participants**

Twenty two (22) delegates from ten (10) European Community member coastal states took part in the training course. The number of participants per Member State is given below and their full details (name, state of origin, capacity and contact details) are presented in the Annex 1.

<b>Member State</b>	<b>Number of Participants</b>
Germany	2
Sweden	1
Netherlands	2
France	1
Greece	2
Ireland	3
Spain	3
United Kingdom	3
Belgium	2
Italy	3
<i>Total: 10</i>	<i>22</i>

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Apart these participants who were entitled to attend the course, the beneficiary had invited an additional number of 13 persons from Greece and Cyprus to attend the whole seminar or specific lectures.

We would like to note that among them, 2 delegates came from Petrola Oil Refinery Pollution Fighting Dept. which hosted the guiding tour to its terminal installations during the second day of the course and the others from greek and cypriot port authorities, oil terminals and shipping companies with which the beneficiary has been cooperating at the field of marine pollution prevention and response. The 13 additional persons took part in the course at their own expenses.

### **C. Materialization of the training course**

The training course, was structured in such a way, to cover, to the maximum possible extent, the general topics defined for this particular field for action (III.4.1 of the call).

Combining a theoretical and practical approach, it consisted of a number of lectures, two demonstrations of oil spill response and a table top exercise.

Lectures per thematic unit:

1. "The behaviour and impacts of oil to the marine environment" including the following lectures:
  - Oil pollution of the marine and coastal environment
  - Fate of oil spills in the marine environment
  - Effects of oil on marine and coastal resources
  
2. "Contingency planning for oil spills" including the following lectures and presentations:
  - The national contingency plan of Greece
  - Cooperation in Pollution response, protection of marine environment and mitigation of pollution caused by sea-based activities in Greece
  - The implementation of shipboard oil pollution emergency plans by shipping companies, CERES Hellenic contingency planning
  - Concerted contingency planning between the petroleum industry and the national Administration in Cyprus
  - Identification and mapping of environmentally, culturally and economically sensitive areas
  - Implementation of Oil Pollution Emergency Plans in Oil Refineries
  
3. "Response techniques and equipment for oil spills" including the following lectures:
  - Application of dispersants

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- Oily wastes treatment, storage and disposal methods and practices
- Containment and recovery of oil and shore line clean up.
- The oil removal operation from the sunken vessel "Jupiter" off the port of Piraeus (lecture and video presentation).

The schedule of the course as it was finally executed is presented in the Annex 2.

Vice Admiral Aggelopoulos Pelopidas on behalf of the Hellenic Coast Guard inaugurated the seminar, welcoming the delegates and the other guests.

Afterwards, Mrs Louise Head, Representative of the B4 - Civil protection and Environmental accidents from Directorate B: Environmental quality of Natural resources of the DG Environment, addressed the delegates on the continuing efforts made by the European Commission to reduce marine pollution, the community actions related to response to marine pollution and particularly the Community framework for cooperation in the field of accidental or deliberate marine pollution as well as the Community Information System.



*Photo taken during the opening of the training course*

### **C. 1 Lectures and other presentations**

The proposed schedule of lectures and presentations was implemented with only a few changes.

These are as follows:

- The intervention of the delegates from Greece who under their capacity as officers of the Civil Protection Agency of the Region of Crete asked for a short presentation on a spill detection and analysis platform implemented by their Region.

Upon the agreement of the organizers, these delegates made a half an hour presentation during the third day of the course on remote sensing techniques

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and a series of modules designed jointly with the National Observatory of Athens and the University of Athens, able to detect oil slicks, analyze their features and assess their spreading and drifting at sea.

- There was a mutual change of the lecturers of the topics "Fate of oil spills in the marine environment" and "Effects of oil on marine and coastal resources". During the consultations with the lecturers it was agreed that Dr. Wesnigk should present the second topic instead of the first and Mrs. Mitropoulou and Mr. Volakis the first topic.
- The topic of National Contingency Plan of Greece was presented by the Lt (T) Lagouros Alex. of the Hellenic Coast Guard instead of Mr. Pittaras Kostas, Director of the Marine Environment Protection Division of the Hellenic Coast Guard.
- The topic of "Containment and recovery of oil and shore clean up" was presented by Capt. Aggelopoulos Michael, Regional Pollution Fighting Manager of Environmental Protection Engineering S.A. instead of Dr. Malaloukas Vasillios.

▪ *List of Lecturers*

Mr. Kostas Pitarras,  Director of Marine Environment Protection Division, Ministry of Merchant Marine of Greece	Dr. Vassilios Tselentis,  Associate Professor Department of Maritime Studies, University of Piraeus	Mr. Dionyssios Routsis,  Transport, Port and Production Manager PETROLA HELLAS, (Coordinator of the guided tour PETROLA HELLAS)	Mr. Wim Hulshof,  Director, Afvastoffen Terminal Moerdijk B.V, Netherlands
Dr. Kostas Papastauros,  Environment Trustee Ministry of Environment, Agriculture and Natural Resources of Cyprus, Cyprus	Dr. Vassilios Mamaloukas,  Technical Manager, Marine Pollution Response Services, Environmental Protection Engineering S.A.,Greece	Mr. Volakis Stelios,  Oceanographer, R & D Department, Environmental Protection Engineering S.A., Greece	Mr. Dimitris Stamoudis,  Environmental and Safety Control Officer, Safety Dept. CERES HELLENIC SHIPPING ENTERPRISES LTD.
Mrs. Vasiliki Mitropoulou,  Chemical Engineer, R&D Dept., Environmental Protection Engineering S.A.	Dr. Johana Wesnigk,  Senior Environmental & Training Expert, BLG Consult Gmbh Germany	Lt (T) Lagouros Alex.  Marine Environment Protection Division, Ministry of Merchant Marine of Greece	Capt. Aggelopoulos Michael  Manager of Regional Pollution Fighting Bases Environmental Protection Engineering S.A.

**C. 2 Demonstration of oil spill response at Piraeus Port**  
**(Wednesday, 13/2/2002)**

The demonstration of oil spill response at Piraeus Port took place during the third day of the course under the coordination of Capt. Scarvelis Stefanos of Environmental Protection Engineering S.A. The scenario of the incident was that during a routine bunkering operation at Piraeus port an oil leakage occurs from the

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transfer cargo hose releasing oil to the sea. The subsequent response included the following:

- Mobilization of antipollution vessel 'AKTEA' at Piraeus port.
- Mobilization of antipollution team at Keratsini base.
- Departure of both high speed work boats equipped with oil booms and sorbent material.
- Departure of antipollution vessel 'AKTEA'. (followed by support craft).
- Departure of Crane truck loaded with oil Skimmer and high pressure steam machine

- Arrival of high speed work boats.

Containment of oil with use of floating oil booms carried to the site with the high speed work boats 'AKTEA 2001' (carrying 180 m of booms at over 40 knots), and high speed work boat 'PATMOS' (carrying 225m of booms at over 30 knots). The average response time for completion of deployment after initial call-out is 20 minutes. High-speed work boat 'AKTEA 2001' arrives and deploys the oil booms around the vessel caused the pollution.

After the deployment of booms 'AKTEA 2001' performed an inspection of the area in order to locate oil patches spread-out. The Flexi multi purpose oil booms have a standard length of 15m per section and joint by U-bolts and are equipped with anchoring points and an aluminum radar reflector.

They can be used either for short-term or long-term operation and they can be easily deployed and recovered requiring very little maintenance. High-speed work boat 'PATMOS' arrives in the port and deploys sorbent materials. Sorbent booms are used at the oil boom extremities to prevent any leakage of oil and sorbent pads are used to absorb oil from the sea surface.

- Arrival of antipollution vessel AKTEA

Skimmer vessels AKTAIA are used, being capable of collecting all types of oil and having a storage capacity of more than 30 m<sup>3</sup>. They can also handle a large volume of oily debris. They have efficient oil and debris separation system and storage facility and they are fully equipped for quick transfer of selected materials to land based facilities.

Priority is given in collecting oil patches that are not contained within the booms and have been allocated from high-speed work boat 'AKTEA 2001'. Personnel in support craft by using high-pressure water jet pushed the oil to the collection point.

The second antipollution vessel 'AKTEA' is approaching the polluter vessel. High speed work boat is 'opening' the oil booms around the polluter vessel and connecting the two ends of the oil booms on the bow of antipollution skimmer vessel 'AKTEA'.

Skimmer vessels have the capability of creating suction on the sea surface by using the mechanical energy of the propellers. Support craft is collecting the saturated sorbent materials and placing new.

- Arrival of Crane Truck.

*Placement of the oil skimmer device (VIKOMA KOMARA 30K).*

This particular portable oil skimmer is designed to recover low to medium viscosity oil from harbors, estuaries and rivers by using a system of rotating oleophilic discs combining a high oil pick-up rate with a very low free water pick-up.

*Cleaning of the polluted docks/shoreline*

Personnel is using high-pressure steam machine to wash the shoreline from the oil residues. These machines are ideal for oil spill clean up operations and for the removal of persistent oils and greases from contaminated surfaces.

The water can be heated up to 90<sup>0</sup> C and pressurized up to 120 bar which will remove even the most persistent oil. Vacuum truck is used for the collection of the oil washed from the docks as well as for the collection of bigger quantities of oil concentrated close to the shoreline.

Support craft is placing sorbent booms and sorbent pads to absorb the oil washed. Collection of saturated sorbents. Rehabilitation of the area.

Equipment that was deployed during the demonstration:

- 1) Antipollution vessel 'AKTEA' (2) for collection of oil.
- 2) High speed work boat 'AKTEA 2001' for deployment of foil booms, and inspection of the area).
- 3) High speed work boat 'PATMOS' for deployment of second series of booms.
- 4) Support craft for placement of sorbents to avoid leakage from booms, and handling of oil skimmer and collection of saturated sorbents.
- 5) Floating Oil booms to contain oil
- 6) High pressure water jet to push the oil to the collection points
- 7) High pressure steam machine to wash shoreline / port docks.
- 8) Oil skimmer KOMARA 30k / FOILEX skimmer
- 9) Sorbent material to minimize leakages, protect shoreline
- 10) Crane Truck for the transportation of the equipment.





*Photos taken during the demonstration at the Port of Piraeus*

### **C. 3 Visit to the installations of Petrola Hellas Oil Refinery (Tuesday 12/2/2002)**

The visit to Petrola Oil Refinery took place during the second day of the training course according to the schedule. Petrola Hellas S.A. is located in the Elefsis Gulf, covering an area of about 1.300 acres, owning one of the largest storage capacities for crude oil and oil products in Greece.

Mr. Routsis, Transport, Port and Production Manager informed the delegates on the environmental and safety policy of the company, the measures followed to prevent or mitigate oil pollution from the land based or marine installations as well as the internal training and drills procedures the company implements for its personnel.

The delegates were guided to the liquid waste biological treatment facility of the refinery and watched a demonstration of a fire-fighting drill broken out on a ship berthed to the terminal. A powerful tug and other support craft were involved in that demonstration.

### **C. 4 "Artemis" Table top Exercise**

The tabletop exercise that took place on the fourth day of the training course, had been designed to provide a realistic simulation of an emergency response to an oil pollution incident, placing emphasis to problem solving than decision making.

Controllers of the exercise were Dr. Mamaloukas - Frangoulis from the Environmental Protection Engineering S.A. and Cpt. (T) H.C.G. Papadimitrakis Emm. from the Marine Environment Protection Division of the Ministry of Merchant Marine.

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The participants, organized in four management teams, were given with specific roles to play and targets to accomplish and they cooperated working on the oil pollution scenario with the primary aim to provide an effective response in order to minimize the impact to the marine environment. In the beginning of the exercise, the objectives set, were clarified as well as the role of each one of the response management teams. Team members were requested to establish priorities and to organize spill mitigation actions according to the Ground Rules provided. A documents' package (Annex 3) was provided to each delegate consisting of:

- The scenario overview
- Ground rules
- Initial Incident Information Form
- Vessel data
- Properties of the oil as cargo which leaked
- Press Release issued by the Ministry of Merchant Marine
- Weather report
- Nautical chart of the area and a map showing the environmentally sensitive areas and sites of socio-economic interest in the wider gulf of Salonica
- Message/Request form from team members to the controllers of the exercise

The oil terminal of Kalohori in Salonica was selected as the area of the incident. The industrial area of Kalohori is one of the biggest crude oil and oil products storage facilities with 8 loading/unloading anchorages managed by four oil companies. This area is very close to the urban complex of the city of Salonica as well as to an extensive Natura 2000 designated zone. The scenario involved the collision between a tanker and a bulk carrier resulting in 700 cubic meters oil escape at sea. After the completion of the exercise, each team presented openly the basic elements of its response strategy, any difficulties faced and a description of its achievements. After that the controllers reviewed and discussed the steps and progress made by each team identifying fields of response that were neglected or tackled successfully.



*Photo taken during the Artemis Exercise*

#### **D. Course Documentation Production**

In accordance with the action, the necessary documentation was produced and provided to each one of the delegates before and in the beginning of the seminar, as follows:

- The final, detailed programme of the course and its embodied demonstration and visits.
- A Cd-rom containing all the lectures, lecturers' CVs, and other information in English and French (a copy is provided herewith).
- An evaluation form was prepared and given to each delegate, on the basis of which the results of the course are presented next.
- A Table top exercise aid package (Annex 3).

#### **E. Evaluation of the course by the delegates - Results**

Upon the completion of the Seminar, each participant was given an assessment questionnaire aimed at evaluating the course from different perspectives in order to provide the organizers with some feedback to improve the planning and practice followed in offering training on the field of spill response in the future. In addition, to provide an objective evidence for the Commission over the success of the action.

Thirty questionnaires were completed and the answers given in terms of numbers and percentages as well as all the comments and remarks received, are presented below:

- Were you given help and concise guidance in understanding the essential and polymorphic facets of marine pollution response?

Yes	Number of Participants: 30 (100%)
No	0 (0 %)

- Were there any of the topics contained in the syllabus that were not covered during the presentation?

Yes	Number of Participants: 2 (7 %)
No	28 (93%)

If yes, please indicate the related topics

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- Oily Wastes treatment and disposal methods and practices (from 2 participants)
- Presentations regarding the National and Local Contingency Plans (from 1 participant)

- The content, both theoretical and practical, of the seminar was:

Valuable and detailed                      Number of Participants 19 (63%)

Sufficiently informative                      "                      11 (37%)

Pointless with known matters                      "                      0 (0%)

- Was the seminar successful in increasing your awareness on the oil spill response practices and procedures?

Yes                      Number of Participants 28 (93%)

No                      2 (7%)

- Suggested topics for future courses or workshops and other comments

a) Protection of natural resources, fisheries and aquaculture

b) Safety of pollution fighting operations at sea and on the coastline

c) Oil spill response costs

d) Chemical incidents onboard the ships leading to pollution

e) Ways of disposing the recovered solid waste, Bioremediation, Disposal sites

f) Oil Spill Modeling and GIS applications

g) Oil properties from a chemical point of view affecting marine pollution

h) The role of the European Commission to marine pollution response

Other comments

- Hands on training over the use of pollution fighting means and equipment (2 participants)
- The table top exercise was deemed very interesting (2 participants)

**European Community Framework for Co-operation in the field of accidental or deliberate marine pollution - 2000 Call for Proposals**

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- It was very important that the seminar achieved to have different stakeholders (shipping, oil industry, port authorities, local communities) to present their efforts for being prepared in case of emergency (1 participant)
- Video presentations of actual oil pollution incidents ensure a better understanding of oil spill response activities (1 participant)

Environmental Protection Engineering S.A., the beneficiary of this project, feels that the training course was successful, achieving the objectives that had been set.

It was judged as particularly effective, the rolling combination of theory and practice in the four-day course. Both the demonstration of spill response in Piraeus Port, the visit and demonstration in Petrola Hellas installations and also the table-top exercise contributed to the training process by giving the opportunity to the delegates to better realize issues that were previously presented such as the emergency procedures followed by the oil industry and the spill response industry which both constitute the core of the modern tiered response, spill mitigation machinery and methods, etc.

It was reflected also in the evaluation of the course that it was constructive for the delegates to have all the potential parties who are invariably responsible in an oil pollution incident, present to provide an input from their standpoint. It was equally important also for the representatives of these parties to share and exchange views, as their co-presence fostered an efficient understanding over their own spill response efforts and procedures.

One of the objectives of the action was to share information among the participants on the way, separate stakeholders prepare themselves to respond to potential pollution incidents caused by their own activities or other external sources. The way that the National Administration, the oil industry, shipping, private spill response sector, waster treatment facilities, academia and research institutes work when a marine pollution incident occurs, in the context of a pre-agreed contingency plan, took the centre of the stage of the seminar.

The beneficiary attempted to emphasize the link between the planning for handling urgent pollution incidents and the level of spill response. While increased prevention policies and measures have been achieved through strict attention to operating and maintenance procedures, oil and other harmful spills continue to happen calling for retaining a satisfactory level of preparedness and response.

It was recognised that contingency arrangements need to be reviewed and tested and other relatively neglected facets of response activities need to be taken into account and addressed in advance such as the final disposal of waste, scale of areas and activities to be protected, preparation of clean-up guidelines tailored to the shore types and other environmental factors, etc.

Environmental Protection Engineering S.A. would like to thank the European Commission for its trust to approve and fund this action under its rolling action plan with the aim to support Member States capabilities in responding to oil pollution incidents.